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Convergence processes in the European housing markets

International and regional perspective

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Content

Introduction

Studies concerning the situation of households reveal growing inequalities seen from a historical perspective. These findings may testify to the unjust distribution of world wealth, which results in the emergence of two worlds: the world of the hungry and the world of the satiated [Sachs 1964]. According to I. Sachs, this leads to the creation of the "cup of shame": 80–90% of the world's wealth, illustrated by the bowl of the cup, is concentrated in the hands of 10–20% of the world's population. The rest of the population (80–90%) accounts for only 10–20% of the wealth. The above-presented situation means that a market economy is a source of powerful destabilising forces, which threatens economic development and a sense of social justice [Acemoglu, Robinson 2014].

The awareness of growing inequalities provided the impetus to the development of the concept of inclusive capitalism, more fair than the present system [Mączyńska 2019]. There is a growing belief that the form of capitalism that exists today, profit-oriented while ignoring social issues, must change.

Increasing inequalities are visible in the area of:

- growing income disparities. Studies conducted on data derived from more than twenty countries over three centuries reveal that the rich are becoming richer, while the poor are becoming increasingly poorer. This has not only social but also economic consequences. From the point of view of economic development, the biggest problem is the demand barrier. The poor have no means to purchase goods with, while the rich experience diminishing marginal utility of income. They devote their excessive income, unable to find the application in the sphere of material production, to speculative investments [Piketty 2015];
- accumulation and concentration of assets. This process is considered as more destabilising than income divergence, posing a major threat to the dynamics of wealth distribution over the long term [Piketty 2015].

In the context of growing inequalities, convergence research, which is part of development economics, has become a popular research problem.[1] Convergence

1 Development economics grew into a separate discipline in the 1950s, gaining in importance in the 1990s.

is understood as the process of equalising economic variables among individual countries or regions caused by faster development of poorer areas. Unfortunately, equalisation processes are disturbed by opposing forces acting towards divergence, i.e. the intensification of disparities and disproportions among countries (regions).

Several convergence types are distinguished in the literature. Taking into account the object-related criterion, real and nominal convergence is distinguished. Real convergence refers to the level of similarity of the structures of studied economies (including their sectoral structure, ownership structure, and consumption structure) and similarity in the scope of business cycle fluctuations. Nominal convergence concerns convergence of macroeconomic nominal indicators (price levels, exchange rates, inflation or budget deficit). Taking into consideration methodological issues, beta-convergence (absolute and conditional), sigma-convergence and gamma-convergence are distinguished. Beta-convergence refers to the process in which spatial units strive to achieve a certain level of equilibrium. When this level is identical for all units, regardless of their initial conditions, convergence is absolute. If examined units strive for different equilibrium states, depending on their internal characteristics, conditional convergence is determined [e.g.: Mankiw, Romer, Weil 1992; Barro, Sala-i-Martin 1990]. Sigma-convergence refers to the phenomenon of decreasing diversity of a specific variable in studied spatial units. In gamma-convergence, a change in the position of analysed units in the ranking including a particular variable occurs.

The concept of club convergence has also been distinguished in the literature. According to this concept, economic variables in economies with similar characteristics tend to become convergent with one another in the long run, assuming that their initial conditions are similar.

Studies concerning convergence and divergence cover various areas, including the housing sphere. It certainly belongs to one of the most important areas where social and economic disparities are frown upon. This market covers basic human goods, desired by all market participants. The housing sphere plays a huge role not only in the individual dimension, satisfying basic human needs, but also in the community dimension, providing the basis for the creation of social bonds, in the material dimension, since housing assets are one of the basic components of family, community and state wealth, and in the economic dimension – the housing sector is one of the most important components of the economic system, as it creates jobs, technical infrastructure and the basis for social infrastructure. The real estate market generates not only demand for dwellings but also a demand effect felt in other markets, as it is strongly connected with complementary markets, such as the market of construction materials and building plots, or credit markets, including construction loans and mortgages, and finally with the markets of interior furnishings [Nykiel 2009, pp. 8–10]. Due to the significant share of residential real estate in household assets (approx. 40–80%), this market, through the wealth effect, influences household decisions regarding the level of consumption

[Żelazowski 2009]. In addition, real estate performs important fiscal functions, constituting a source of income for local budgets.

Spatial diversity of housing markets has been the subject of research for many decades. The process of integration of European economies has strengthened interest in diversification of housing markets and a desire for their harmonisation. This has changed the approach to conducting research concerning domestic and regional real estate markets: a shift from simple comparative analyses, from comparisons of institutions and phenomena occurring in different countries without well-developed theoretical foundations, which was typical of the so-called historical trend, through examining similarities (an element of convergence) among individual systems used to meet housing needs in terms of the identity of forces acting towards the unification of national markets (the universalist approach), to creating a typology of housing markets [Kemeny, Lowe 1998]. The typology concept seeks common development patterns and types of housing markets, and then indicates factors that shape and maintain the existence of a given pattern.

From the point of view of the subject of this publication, it is interesting to note that the typology approach to real estate markets was used to study housing markets in post-socialist countries, in particular in terms of relation to property law [Mandič, Clapham 1996]. The political transformation provided an extraordinary opportunity to test theory in practice. It was expected that in accordance with the universalistic approach, the common past of post-socialist countries would result in common institutions, mechanisms and processes in the future in the process of their housing markets becoming similar to the markets of Western countries [Clapham 1995]. A mass privatisation process was indicated as the basic stage of transition from a planned economy to a free market economy. From a 25-year perspective, however, it can be stated that post-socialist countries differ in terms of developmental trajectories of housing markets and their current state. It is therefore very valuable from a research point of view to include them in the existing typology of Western housing markets.

Previous studies of convergence in the area of housing markets concerned primarily price convergence. They were an attempt to answer the question of whether housing prices at regional or international levels tended to achieve a stable equilibrium. In addition to price convergence, research into real convergence of housing systems was initiated in the literature devoted to the functioning of housing markets. In the context of integrating European economies, the question about the direction of structural changes in the area of housing became important. The conducted research concerned, among others, the assessment of the scope and dynamics of convergence processes in the area of the ownership structure of housing markets, their financing systems, with particular emphasis on mortgage lending, as well as the institutional environment of housing markets [Żelazowski 2018]. However, the research was fragmentary and often did not allow for constructive conclusions to be drawn.

Based on the third research approach (typology of housing markets), the authors have formulated **the main goal as the assessment of the course of convergence processes occurring in European housing markets and the identification of effects of this convergence. The research has gone beyond the traditionally analysed nominal convergence, being also an attempt to assess the course of real convergence of housing systems.**

The intermediate objectives enabling the achievement of the main goal include:

1. Assessment of the scope of convergence of housing markets.
2. Assessment of the dynamics of processes of housing markets convergence.
3. Identifying causes of processes of housing markets convergence.
4. Assessment of alignment of convergence processes occurring in housing markets with convergence processes occurring in European economies.

The search for an answer to the question about the direction and sources of changes taking place in European housing markets was supported by the analysis of:

1. Internal factors of a regional and national nature connected above all with history-related determinants of functioning of housing markets, priorities of housing policy, as well as economic potential and investment attractiveness of a given region or country;
2. External factors including socio-economic processes on an international scale. Their source is the progressive integration of European economies and the accompanying free movement of capital, migration of human resources, as well as unification of cultural patterns and lifestyles (the process of californisation of needs).

Scientific achievements to date regarding determinants of the development of housing markets and factors determining their evolution as well as achievements in the field of convergence formed the basis for four research hypotheses: (H1) housing markets in European countries are subject to convergence processes, (H2) convergence processes in housing markets are influenced by external and internal determinants, (H3) housing convergence is spatially heterogeneous and assumes the character of club convergence, (H4) the long-term consequence of convergence is not unification of housing systems but a reduction of disparities in the level of their development (their harmonisation).

The accomplishment of the main goal and intermediate objectives has been presented sequentially in seven chapters which form three distinct parts of the work:

- Part I of the publication, entitled *Development processes of housing markets*, undertakes theoretical considerations regarding the housing market as part of the housing system (Chapter I) and the evolution of European housing systems in the post-war period (Chapter II), presented in more detail in Chapter III, devoted to the evolution of housing markets in selected countries. The first part of the work is an important introduction to further deliberations: it presents housing in the framework of a systemic approach, as well as the specificity of real estate markets, the social and economic importance of

the housing market, along with the development of various housing policy models with an indication of their political, social and economic determinants.

- Part II, *Convergence of housing markets in the European Union countries*, is the most important from the point of view of the goal of the publication and its research hypotheses: it explains the phenomenon of economic convergence by presenting methods of its measurement (Chapter IV), presents a review of the literature devoted to the research undertaken so far on the course of convergence in housing markets, as well as attempts to verify price and non-price convergence of housing markets from two perspectives: international and regional (Chapter V).
- Part III, devoted to *Assessment of housing convergence and its effects*, allows for the assessment of convergence of European housing markets against the backdrop of economic convergence based on the cited literature and own research. Chapter VI presents the discussion on mutual relations between economic convergence of the EU Member States and convergence of their housing markets. Research results on the scope and rate of economic convergence of EU countries are presented, and in their light, it is verified whether and to what extent convergence of housing markets is a consequence of the progressive integration of the members of the European Community. Chapter VII, very important from the point of view of achieving the goal of the work and verifying its hypotheses, presents the directions of changes in housing markets which are subject to the phenomenon of club convergence: changes in the housing policy area, price formation and housing situation. The analysis is carried out in two dimensions: international and regional. An important element of this chapter is an attempt to assess the future course of convergence processes.
- The summary contains basic conclusions resulting from theoretical considerations and conducted research.

For the purpose of preparing this publication, various research methods were used to both collect and analyse data: (1) the method of literature review, (2) the method of comparative analysis, (3) the method of analysing legal acts, (4) statistical methods, and (5) econometric methods.

The book, focusing on various forms of convergence of housing markets, is the effect of implementing the grant financed by the National Science Centre (No UMO-2016/21/B/HS4/00750). It is addressed to a wide audience: people researching the theory of economic growth, individuals professionally interested in the issues related to the functioning of real estate markets, and especially to students of programmes that have included real estate issues in their curricula.

Part 1
Development processes of housing markets

Chapter 1

The housing market as part of the housing system – theoretical foundations

1.1. The housing system

The housing system is a complex organism that is transformed in response to political, institutional and cultural changes. In itself, it also affects society and the economy. Explanations of the concept of the housing system that can be traced back to the 1980s are an indirect indicator of ongoing socio-economic changes. In 1981, it was said that the housing system constituted of mutual relations between its main participants, the housing market and the political and institutional context [Bourne 1981]. Owners of real estate, lenders, speculators, construction companies, intermediaries, planners, politicians and consumers were considered the basic actors of the system. It was indicated that they cooperated in real estate rights transactions under certain conditions, including the existing legal system, social stratification, property rights, financial system, legal regulations relating to land, buildings and infrastructure, as well as the government policy. It was pointed out that as a result of the interactions there was a specific distribution of housing resources in space, identified by, among others, existing patterns of satisfying housing needs, changes in land use and housing prices, as well as changes in quality requirements [Bourne 1981].

Subsequent authors modified this formula, stressing, among others, the importance of the political and institutional context affecting relations and interactions among the participants of the system. This context was analysed more closely by examining economic, demographic, political and spatial determinants impacting production processes, housing consumption and housing regulations [Priemus 1983]. Another modification of the definition of the housing system was made by distinguishing mutual relations and impacts of the housing market structure (seen

as the institutional structure), the system participants and the housing policy influenced by external factors [Boelhouwer, van der Heijden 1992]. These relations and influences shape the housing market, affecting its size, construction activity, distribution of resources among households, and the relation of housing expenditures to incomes.

Other researchers saw the housing system as a set of organised parts interacting with one another in time and space [Bekebrede, Mayer 2006]. Demand (represented by households and their preferences), supply (represented by construction companies, developers, and property owners, with the auxiliary role of intermediaries), and institutions (formal and informal norms) that determine how the system works were distinguished [van der Heijden, Dol, Oxley 2011].

The embedding of the housing system in the unique socio-economic system of a particular state means mutual interactions between them as well as the emergence of unique determinants and solutions. The importance of the historical path dependence, which is very difficult to alter, should be emphasised [David 1985; Arthur 1989, 1990]. The central issue is a lack of openness to novelties, i.e. "*lock-in*", which makes it impossible or very difficult to apply new solutions, launch new products, or create completely new institutions. Among the many trends in studies on the impact of *path dependence*, North's position deserves special mention. He has stated that it is not a past historical event that is causative but rather the process of institutionalisation [North 1990, 1994]. Limited rationality and high transaction costs create barriers to institutional change. Such a change can only take place when high transaction costs are incurred. North has noted that institutions are in motion, he has indicated the continuity of the process of change, and has also pointed out the causative entities – entities fighting for their own interests and organisations competing with one another. According to him, the scope of changes is limited by the experience of entities and the past shapes current "mental models". This approach assumes a historical continuation of institutions.

With regard to the housing system, the housing policy is particularly important in this context [Kleinman 1996]. It is believed that this policy is more susceptible to the impact of *path dependence* than other spheres of socio-political life [Bengtsson, Ruonavaara 2010]. This is due to certain specific features that make quick changes difficult. These include: the connection of the housing stock with one place (anchoring it in space), durability of its qualitative and quantitative structure, users' emotional attitude and their attachment to specific locations, as well as public intervention as a factor correcting market irregularities in the face of the need to accept new rules of the game by consumers and producers of housing space. Monitoring changes in the housing policy at the level of specific countries makes it possible to answer the question about the existence and impact of *path dependence*. The role of *path dependence* is confirmed by studies carried out, among others, with regard to Scandinavian countries [Bengtsson et al. 2006] or Great Britain [Malpass 2011].

1.2. The housing market and its determinants

The housing market is an essential element of any housing system in a market economy. The question arises what it actually is and what factors determine its functioning and development. There are a number of concepts and definitions in the literature that emphasise the importance of various aspects of the housing market along with many studies and analyses of specific processes and mechanisms, but it is difficult to formulate a cohesive and comprehensive definition of the very basic element of these considerations, i.e. the housing market. In the neoclassical approach, the housing market definition emphasises the importance of market equilibrium, special features of the housing market are not taken into account, and the market is adopted to rigid theoretical assumptions, which prevents in-depth analyses, and thus conclusions drawn are not necessarily based on real foundations. This may lead to taking unsuitable and inadequate political decisions with effects that are divergent from those anticipated and expected [Maclennan 2012]. It seems that the combination of elements of economic psychology and political economy would allow us to take into account the aspects neglected in the macro approach and analyse the multidimensionality of the housing market.

To understand the distinctiveness of the housing market, one needs to look at properties themselves. They have many attributes, and their value reflects not only their location or neighbourhood, but also economic and financial, demographic and even political determinants. The heterogeneity of real estate meets the diversity of consumers, and consumers also differ in terms of preferences, wealth, and age, hence different groups make their own, separate choices. The connection of real estate with one place, its durability, and at the same time high capital intensity mean that its choice is burdened with many sources of risk. Households are connected with one another socially by neighbourhood ties, they have specific expectations and preferences, and can generate strong trends in the local market. The rarity of transactions in the market means the need to reduce risk by using professional brokering services.

The market is a kind of institutional apparatus that is used for exchange; it is composed of mechanisms, systems and relationships that enable and facilitate the flow of information between potential parties to the transaction. In principle, negotiations between the parties as well as the flow of rights and money do not currently require their personal contact. However, real estate is a special kind of good, as rights are the subject of the transaction. There may be many rights in relation to the same real estate, therefore it is necessary to understand the essence of the purchased rights (there is no complete standardisation, unique laws and various restrictions exist in individual countries). In addition, real estate is associated with a specific place in space and is therefore unique. Hence, potential transaction participants must commit much more of their time and resources compared to the

transaction with a standard good so as not to make a mistake in choosing this particular good and negotiating its price. In each market, the flow of information is its foundation, and the more complete and widely available the information is, the more transparent the market is and the greater the development opportunities are due to lower transaction costs. There is no transparency and equality in access to information in the real estate market, the use of information may be limited by the payment for obtaining it[1] – incurring transaction costs related to obtaining information may limit the number of potential market participants.

The real estate market is operated by entities that facilitate the flow of information and can serve as its verifiers – typically they are market intermediaries, and in a digitalising world their services are complemented by digital spatial, tax and technical data sets. Correct and complete reading of this information, however, often requires specialist knowledge, so the emergence of new sources of information does not automatically mean the disappearance of services provided by intermediaries, experts and advisers. In addition, transactions in the market are carried out by individual participants relatively rarely, which means that they lack the possibility of referring to their own past experiences, of familiarising themselves with mechanisms specific to a given market, and hence they may even have difficulty determining what they prefer, what can be bought in a specific market or at what price it can be sold. This situation supports the continuing role of institutions providing intermediary and advisory services.

In addition to institutions that determine security and access to information about market mechanisms, the shape and size of the market is influenced by the behaviour of its participants as a result of the impact of formal and informal norms – customs. These can significantly differ at the local or national level, and a lack of knowledge about them or the awareness of their impact can significantly increase transaction costs and hinder the exchange in the market.[2] Differences in the existence and operation of institutions, formal and informal norms, multiply the market and the equilibrium price.

When defining the housing market, one should refer directly to its subject expressed simply as a dwelling understood broadly. It is, however, a sort of mental shortcut, because – as mentioned earlier– property rights are actually the subject of trade and concluded contracts. The basic and fullest, though not absolute, right is the ownership right. Apart from it, depending on the solutions adopted in a given legal order, rights similar to ownership are possible (in Poland, for example, a cooperative member's ownership right to residential premises). The right to use

1 That is why it is so important for public entities to provide universal access to basic data on the legal status of real estate.

2 It is possible to mention here such issues as signing preliminary contracts or not, using or not building experts to assess the dwelling's technical condition, paying a fee for intermediary services, or the difference between the asking price and the actual selling price.

a dwelling can also result from tenant rights, in the framework of such relations, this kind of law often provides special protection for tenants in their legal relationship with the owner. A dwelling unit as the central element of the housing market can be understood in various ways.[3]

Satisfying housing needs has not only a social, economic and political meaning but also cultural, as it is essential for human well-being, and at the same time it is rooted in culture and social relations [Mallett 2004]. In terms of economic determinants, it can be said that a dwelling unit is a technical construction that arises on the land with the use of capital and labour. This unit is of a permanent nature, connected with a specific place and its environment, which causes its unique character. The market structure and processes are shaped by many factors, including architectural, urban and technological solutions applied at a given property and its economic location (i.e. the availability of services, roads, public transport), which affects the possibility of taking up employment, starting a family and everyday functioning. The cost of housing services affects the well-being of a household, as it is a significant component of costs in its budget.[4] The choice of the method of satisfying the housing need (purchasing a property or renting it) and of a particular property requires a great deal of effort, and the mistakes made are difficult to remedy and very costly. The household is exposed to adverse selection and moral hazard, which results from, among others, a lack of experience in making such choices and the asymmetry of information between the seller and the buyer. Under these conditions, obtaining expert information on prices requires the use of expert services [Quigley 1999]. The level of institutional development in the context of extensive expert and advisory services as well as the necessary competition between entities providing such services influence the decision-making process and the adequacy of decisions made in relation to the needs. It should be also noted

3 In Poland, the legal definition of a dwelling is included in the Regulation of the Minister of Infrastructure of 12 April 2002 on the technical conditions to be met by buildings and their location, Journal of Laws 2019, item 1065. According to the definition, a dwelling is a complex of residential and auxiliary premises, having a separate entrance, separated by permanent building compartments, enabling permanent residence of people and running an independent household; a residential building comprises a) a multi-family residential building, b) a single-family residential building. The definition adopted by the Central Statistical Office/Statistics Poland is based on the Act of 2 December, 1999 on the national population and housing census in 2002, Journal of Laws 2000, no. 1, item 1 as amended as well as on the Act of 24 June 1994 on ownership of premises, Journal of Laws 2019, item 737. This definition states that a dwelling is a room or suite of rooms, including its accessories, intended for permanent habitation which has been built, rebuilt or converted for residential purposes, separated by permanent building compartments, having a separate entrance from the staircase, common hallway or lobby, the street, courtyard or garden.

4 The cost of housing services is understood broadly in this case, it is not only the rent, but also the cost of a mortgage, and the costs of maintaining the property in proper technical condition.

that there are two groups of buyers with different goals which can be clearly identified – owners-users and owners who profit from renting out their properties. For the first group, personal contact with the property is basically necessary, as they have their own preferences and desires that they want to realise. For investors, however, personal preferences do not matter in rental properties, they can make a choice based on a virtual visit and description made by an expert if the property meets their investment assumptions.

When selecting a particular flat or house, a specific space is chosen. The number of offers is limited, there is no single market on which all existing offers are visible, there are many sub-markets with their own prices. An important factor in understanding the sources of risk associated with the choice of real estate is that while the property itself is associated with one place, its surroundings may change independently and sometimes against the will of its owner. Therefore, an increase or decrease in the value of the property may be beyond its owner's control. Buyers must therefore determine all potential sources of risk, they can do it on their own or with the help of an expert.[5]

Expectations as to prices and their changes as well as location strongly affect the functioning of the market. Moreover, cultural factors are also important due to the fact that the choice of place of residence is often the adopted lifestyle and social status statement or an attempt to build prestige. Research indicates that households choose their place of residence among similar households, applying the same principles and recognising similar values [Owczarek 2011; Mantey 2017]. Change – the gradual settlement of new "others"– may result in the retreat of the group of "old" residents. Demand can therefore suddenly change under the influence of cultural factors.

The supply side of the housing market is characterised by a slow response to the reported demand, as indicated in the literature, this is due to the length of the construction process, and in particular the initial phase related to the adaptation to the existing planning system [Glaeser, Gyourko, Saiz 2008; Grimes, Aitken 2010]. Some believe that there are too many simplifications in the analysis of construction economics [Ball, Wood 1996; Ball 2003]. The construction sector is very diverse and fragmented, profits are unevenly distributed over time, often resulting not from the construction itself but from an increase in the value of land held in land banks. The costs of construction works and demand may change dynamically,

5 It can be pointed out that according to the developer's prospectus, the developer is required to indicate information contained in publicly available documents regarding planned investments within 1 km from the property in question, in particular information about road construction and extension, construction of railways and planned air corridors, as well as other known municipal investments, in particular wastewater treatment plants, garbage incinerators, landfills, or cemeteries – the Act of 16 September 2011 on the protection of the rights of the purchaser of a dwelling or single-family home, Journal of Laws 2017, item 1468, as amended.

and it is difficult to predict the intensity of these changes. In addition, companies compete with one another.

Reliable and up-to-date information is needed for the market to operate efficiently. This is one of the fundamental problems of the housing market, because if information is available, it is usually lagged. In addition, certain sub-markets are more visible – information that concerns them is disseminated, which gives the impression that the indicated phenomena, price fluctuations, change dynamics are common, which is not true. Adaptation of sub-markets to changes requires time, they tend towards equilibrium, but it is a process spread over time.

In a market economy, the functioning of the housing market, its effectiveness in the allocation of existing housing resources, and the possibility of creating the new supply adequate in terms of quantity and quality to the reported demand are the resultant of economic and non-economic factors, which can be most easily divided into factors of national importance and local importance. Among the factors of a national nature, the following should be mentioned:

- economic growth, its dynamics and the prospect of its changes,
- the monetary policy implemented by the central bank and the level of interest rates connected with it,
- the degree of development of the domestic capital market,
- housing programmes implemented by central state bodies,
- investments financed from the state budget.

Their common feature is shaping the framework for the functioning of the housing market and its development potential in macroeconomic terms [Leung 2004]. Analysis of local markets, however, requires the extension of this data set to incorporate additional information, such as:

- the existing local housing stock,
- demographic factors, e.g.: population, the age and gender structure of local communities,
- household wealth, including wage and non-wage income,
- the level of unemployment, economic activity of working-age population,
- prices and availability of land intended for residential investments,
- the level of development of local construction markets.

These are fundamental factors determining the spatial diversification of the development of local real estate markets and the level of meeting housing needs. The housing market is characterised not only by a strong dependence on the state policy, driven by mutual relations between the state and its citizens forming households, as its condition and level of development also depends on the development of financial institutions, the performance of the construction sector and the ownership structure. The housing supply model assumes an important role of commercial developers whose activities depend on the circulation of capital (available sources of capital), availability of land and expected costs in the construction sector.

Demand is the result of the impact of economic, demographic and social factors. An increase in income and a reduction of financing costs are the most important economic conditions affecting an increase in demand. In a long run, a reduction of financing costs encourages investment in the housing market. It should be noted that the market affects the allocation of dwellings according to the existing distribution of income. Lower-standard dwellings are affordable for less affluent households. In the long term, an increase in income and an increase in the housing stock should enable the purchase of higher standard dwellings, as their owners also seek to improve their housing conditions.

Although new supply does not have a direct impact on the price level, in the long run it affects the market by balancing (or bringing close to equilibrium) the demand side. The state of the market is affected not only by the mutual relation of demand and supply but also by expectations of owners or potential investors as to the further movement of prices. These expectations are also a consequence of a lack of response on the supply side.

Insufficient supply contributes to higher prices. On the one hand, this means a sense of growing wealth of households owning dwellings, and thus an increase in their consumer spending [Case, Quigley, Shiller 2005; Shiller 2006]. On the other hand, however, it increases the costs of living of those who are not owners of the housing stock and reduces the mobility of jobseekers. The ownership structure is undoubtedly of great importance in this respect.

1.3. The social and economic dimension of the housing market

Real estate performs a special function in the economy, constituting the basis for satisfying diverse needs. Generating production and services requires a real estate resource. Therefore, the issue of the real estate market is an important element of theoretical considerations as well as empirical research.

The real estate market is not homogeneous, and a number of its segments can be distinguished. One of the segments of the real estate market is the housing market. There are two types of demand in this market: consumption demand, related to satisfying housing needs, classified as basic human needs, and investment demand, when the dwelling is treated as a capital good. In both situations, the role of the dwelling is to generate a stream of housing services to satisfy housing needs. Housing needs can be met by:

- purchasing a dwelling, which requires the use of family income of many years,

- renting a dwelling – the person whose housing needs are being satisfied is a tenant that pays rent for the possibility of using the dwelling. Under market conditions, its amount should include: the cost of dwelling maintenance, the return of the capital invested by the owner and the income derived from the capital invested by the owner.

By satisfying housing needs, the dwelling performs a **social function** [Kucharska-Stasiak 2016a]. In the social approach, attention is focused on the dwelling understood mainly in the technical and construction sense as well as the architectural and urban planning sense [Cesarski 2013a, p. 9]. The dwelling determines the inhabited space *sensu stricto*, creates the possibility of satisfying various functions related to human existence, such as: fulfilling basic needs related to protection against the influence of changing environmental conditions, providing opportunities for rest and sleep, cooking and raising offspring, it enables improvement of quality of life, increases motivation for action, enables intellectual development, reduces frustration and increases a sense of security, and becomes an expression of ambition and aspirations of every human being, providing "an opportunity to manifest one's own personal lifestyle" [Krakowińska 2007, p. 78].

In addition to the aspect of an individual dwelling, its community aspect is revealed: it is a material basis for satisfying basic socio-economic needs related to the settled character of human civilisation [Cesarski 2017, p. 17], it is one of the few forms of socio-economic activity that leaves a lasting trace of material culture, the activity forming its base [Cesarski 2017, p. 19]. The dwelling is the foundation that shapes social life, creating social bonds among people living in the neighbourhood. By shaping basic social ties, the dwelling determines the family's durability, the model of life, the culture of living, and also the demographic development. It has been proven statistically that the number of dwellings put into operation greatly influences the number of marriages and the number of children who come into the world. Statistical analysis, covering the years 1965–2005, confirmed that after taking into consideration the time lag, the correlation coefficient (Pearson's) between the number of dwellings built and the number of births amounted to 0.941 [Raport 2006 o naprawie sytuacji mieszkaniowej, p. 82].

The dwelling satisfies increasingly complex and developed individual needs, recognised as higher-order needs, by creating conditions for the social and cultural development of individuals and groups (culture, education, entertainment), stimulates professional activity and creative attitude to work, triggers the desire to improve professional qualifications and the ability to innovate [Krakowińska 2007, p. 79]. Social functions performed by the dwelling change, which is the effect of changes in the model of marital and family life as well as changes in the structure of households. The increasingly common modern family lifestyle leads to two ways of treating the dwelling. One, traditional, reflects the residential model of life in which the dwelling is the prime value around which the family life is focused, it is the object of pride. The other one, representing a non-residential lifestyle model,

treats the dwelling as a means of satisfying basic household needs, it is "... a kind of service point, visited if necessary, allowing the realisation of external values such as work, activity in public life, travels, or social gatherings outside of it. This time the dwelling is only an instrumental value" [Lipski 2009, p. 25]. Despite the evolution of the lifestyle model, the strength of the social function of the dwelling not only is not decreasing but is actually growing. This is determined by universality of meeting housing needs.

The broad understanding of the term "dwelling", going beyond the inhabited micro-space *sensu stricto*, also includes the elements of the natural environment reshaped by man [Andrzejewski 1987, pp. 16–19], which allows us to see the potential of the dwelling exceeding its social functions [Cesarski 2013b, p. 10].

The dwelling is one of leading goods, i.e. consumer goods which invigorate the economy, dynamise the behaviour of the population at the stage of production, distribution and consumption, at the same time affecting the structure of consumption to the largest extent by their attractiveness to consumers and by stimulating demand for other goods [Krakowińska 2008, pp. 75–82]. Thus, the dwelling performs not only a social function but also an economic one, being a prerequisite for permanent development [Cesarski 2017, pp. 11–30]. The dwelling as a leading good causes a complementary and substitutive effect. In the area of complementary effects, it creates new needs and expenses related to its finishing (floor coverings, wallpaper, lighting) and equipment (furniture, electronics and household appliances, etc.). In its use, the dwelling requires spending money on electricity, heat and management costs. Due to the fact that the dwelling consumes a significant part of the income, it has an impact on changes in the structure of household consumption, causing a substitutive effect. It can help to reduce clothing expenses or expenditures on spending free time. Considerations related to the **economic function** of the dwelling, and thus the housing market, draw our attention to the material and economic dimension of the dwelling. The housing wealth measured by the market value of the housing stock is an important element of national wealth. According to Savills research, in 2015, the value of residential real estate was estimated to be 162 trillion dollars in the world, its value exceeded 5.5 times the value of commercial real estate. Residential real estate accounted for nearly 75% of the world value of real estate and 43.5% of the value of major world assets [Savills 2016]. The estimated value of residential real estate in Poland at the end of 2017 was PLN 3.25 trillion vs. 3.15 trillion in 2016, while the value of commercial real estate was approx. PLN 0.25 trillion, which is more than 13 times less [Raport o sytuacji na rynku… 2018; Rola mieszkalnictwa… 2015].

Residential real estate is not only the dominant part of national wealth but also the dominant part of the wealth of households, remaining one of the basic components of their assets. For example, in France, less than one quarter of households own shares, but almost 60% own real estate [Min 2014]. In most developed countries, the value of the housing stock is approx. 50% of the wealth of households

[Ma, Li, Qu, 2017]. The economic dimension of the dwelling reveals the connection between the housing market along with the construction market (known together as the real estate sector) working for its needs and other sectors of the economy, affecting the labour market, consumption, the condition of the banking sector, the course of business cycles, and as a result also the level and directions of changes in GDP.

The impact of the real estate sector on the labour market

The impact on the labour market is revealed through the process of construction of dwellings, their furnishing, maintenance, renovation and modernisation, along with the need to build infrastructure, as well as through real estate trade. In 2016, more than 7% of the total number of employed persons worked in construction and real estate market services [Rocznik Statystyczny GUS 2017], also remaining at this level in 2017 [Rocznik Statystyczny GUS 2018]. Construction works are labour-intensive and require the employment of people with diverse qualifications. This allows for quick absorption of free labour. In the period of recession, due to the susceptibility of the construction and real estate market to the development of the grey market [Kucharska-Stasiak 2016b], the effects of unemployment are being mitigated. The grey market "oils the economy", as it allows for conducting economic activity in certain areas and situations, where this activity could not be carried out as part of the official economy [Fundowicz, Łapiński, Wyżnikiewicz 2018; Schneider 2009]. This particularly applies to the employment of people without qualifications or with low qualifications. Employed in the grey market, they do not place burden on social assistance funds, and the money they earn is spent for the most part in the framework of the legal economy. The development of the grey economy in the real estate sector is favoured by a strongly developed fiscal function of real estate, the opacity of the real estate market and the dominance of small entities in construction and services provided in the real estate market. It is widely recognised that it is easier to hide income in small enterprises, and there is also a weaker ethical attitude present. M. Bednarski notes that "it is easy for a small entrepreneur to lose the company and it is difficult to later rebuild it. The only salvation can be the transition to the grey market, where there are not so many burdens, which may allow for the survival of the company" [Bednarski 2013, p. 48]. Entering the grey market, however, becomes a trap, because a company from the grey market has

> … difficult access to: capital, corporate networks (products created within it are unregistered, and "whitening" them requires illegal activities), good employees, international exchange or SME support programmes. As a consequence, it is difficult to return to the legal market [...]. Hence, in this situation, conducting business activity in the grey market becomes a necessity [Bednarski 2013, p. 48].

Operating in the grey market, however, allows one to survive the period of recession. The above means that there is a much larger number of people in the real estate sector than shown in official statistics, indicating 7% of all employees.

The real estate sector not only creates jobs in the legal economy and the grey economy but also, through linking the process of construction and maintenance of dwellings with other sectors, generates the so-called **multiplier effect**, manifesting itself in the increase of employment in sectors cooperating with construction, such as: industries manufacturing materials and products for construction, industries producing construction machinery and equipment, wires and cables, industries supplying interior furnishings, transport services, services of land surveyors and architects, real estate services and many others. Estimated data reveal that in 2005 in Poland there were 180 to 200 employees in sectors dependent on construction per 100 persons employed directly in construction. The dominant number (140) of employed persons is associated with the production of construction equipment, building materials and housing furnishings [Raport o naprawie sytuacji mieszkaniowej 2006, Appendix 1, p. 77]. Other studies carried out in 2013 by Bolkowska indicate a higher multiplier effect: it is estimated that approx. 100 people employed in construction create 200–300 jobs in areas cooperating with construction [Rola mieszkalnictwa… 2015]. The Polish Association of Real Estate Developers estimates that the share of employees in the housing sector, including multiplier effects (without the grey economy), reaches 15.4% of total employment [Rola mieszkalnictwa… 2015, p. 2].

The impact of the housing market on consumption

The issue of consumption has taken a central place in economists' deliberations on both macro and micro scale [Hall, Taylor 2007, p. 251]. On a macro scale, consumption is considered the main component of GDP, and its course, relatively smoothed in comparison with changes in GDP, is an important feature of the business cycle [Hall, Taylor 2007, pp. 252–253]. On a micro scale, economists attempt to identify factors that determine how to divide personal disposable income into current and future consumption. Postponed consumption creates savings. Consumption behaviour of households is important for forecasting and economic policy. Keynes has argued that the consumption of the whole society depends primarily on its current disposable income.[6] These findings have been called the absolute income hypothesis. An increase in income leads to an increase in savings. It turns out that the Keynesian model is a too far-reaching simplification. It works over short periods but fails over long periods. Consumers' decisions are affected not only by

6 Disposable income is the sum of income from assets and work less the tax [Hall, Taylor 2007, p. 262].

their current income but also by expectations as to their future income. When disposable income falls, the household may take out a loan or use accumulated assets to maintain its consumption. In most of the considered models, consumption decisions are based on life-long household assets, including current and future income as well as current financial and material assets [Claessens, Kose 2017, p. 8]. Fears of losing creditworthiness or depleting assets are proof of the existence of the so-called intertemporal budget constraint. When disposable income is higher than consumption, there will be savings that can be added to assets to be used for consumption in subsequent years. In the years preceding the retirement period, consumption is relatively low, as the household saves more with a view to the future [Hall, Taylor 2007, p. 262]. Therefore, in the long run, consumption varies less than disposable income. People strive to maintain consumption at a relatively constant level throughout their lifetime. Consumers decide how much they will spend on current consumption and how much they will save for the future within the mid-term budgetary constraint. During the period of professional activity consumers save to be able to finance consumption during the retirement period. This means that the current and future levels of consumption depend not only on current income but also on future income and the real interest rate.

Two further theories were based on these observations: the permanent income theory formulated by Milton Friedman and the life-cycle theory proposed by F. Modigliani. Both theories recognise that households are guided by the future in their decisions on the amount of consumption.

The theory of permanent or average income from the last few years is based on the statement that consumption depends both on current income and income from previous years. This means that household consumption is not determined only by current income but also by "…income earned in previous periods, part of which was converted into fixed assets and put away as securities or other savings products, as well as income effects obtained from the expected changes in human capital" [Bywalec 2017, pp. 99–100]. Consumer decisions, according to Friedman, are determined not only by accumulated assets in a given period and currently available disposable income but also by long-term, expected permanent income, identified with fixed income. Previous income allows people to predict their future income [Hall, Taylor 2007, p. 262]. Transitional income, such as bonuses, inheritances or gifts will only slightly affect the modification of current consumption levels, they will be rather saved or used to increase the components of fixed assets. Research conducted in recent decades, however, undermines the validity of Friedman's conclusions. It turns out that the reaction of households to transitional income is growing stronger, and psychological factors as well as the ideology of consumerism increasingly influence consumer decisions [Bywalec 2017, pp. 101–102].

The other theory, the life-cycle theory, assumes that people strive to smooth out the level of consumption throughout their lives. It adopts a simplistic assumption that consumer behaviour is rational, that consumers plan consumption for the

entire period of their lives which they are able to approximate. Throughout their working lives, they save to secure their consumption in old age during the period of receiving their pension. Then, maintaining the current standard of living is only possible if one has appropriate savings in the form of property or financial assets. Consumers are subject to the budgetary constraint in their consumption decisions.

The consumption function is expressed in the form:

$$C = b_1 \cdot Y_d + b_2 \cdot A \tag{1.1}$$

where:
C – household consumption expenditures,
Y_d – disposable income,
A – the value of assets, household wealth,
b_1, b_2 – model parameters.

In the short term, when the accumulated wealth remains constant, consumption depends solely on income, which confirms Keynes's concept. In the long term, when wealth grows, the propensity for consumption remains constant due to the assets accumulated.[7]

Among these theoretical considerations, the role of accumulated assets has been emphasised. This suggests that the increase in accumulated assets, considered as the sum of liquid financial goods and the value of residential real estate, helps to sustain consumption through the use of resources already possessed. Changes in asset prices may affect current consumption, as they change the financial and real wealth of individuals [Claessens, Kose 2017, p. 8]. Since residential real estate forms the basic asset of households,[8] the research hypothesis on the positive impact of the residential real estate market on consumption has been put forward in the literature. It manifests itself through the so-called **wealth effect and security effect.** The wealth effect should be visible in the growing propensity for consumption in relation to the growth in the value of assets. The wealth effect is considered

7 This theory, however, has also been re-evaluated. "The normative approach presented in the life-cycle model assumes full rationality of entities, far-sightedness and optimising character of their actions" [Bańbuła 2006, p. 49]. It turns out that it is not so. Increasingly consumption expenditures depend on the influence of cultural and socio-psychological factors, difficult to analyse scientifically. This led to the emergence of new hypotheses: the hypothesis of relative income [Bywalec 2017, pp. 101–106] or the behavioural hypothesis of the life cycle [Bańbuła 2006]. Consideration of consumer behaviour confirms that the marginal propensity to consume depends to the greatest extent on fixed income, called permanent income, understood as a long-term income average, and to a lesser extent on current income or current assets, and to the least extent on future income [Bańbuła 2006].

8 Household assets are identified with the resources consisting of "…material, intangible and financial goods that are common property of the household or its individual members and are used for production or consumption of the entire household or only some of its members. [...] Household assets include fixed assets and intangible (current) assets" [Bywalec 2017, p. 179].

in two dimensions: using models based on the budget constraint and models based on the consumption function [Lis 2012, pp. 130–134]. Models based on the budget constraint answer the question of how much consumption will change if total assets change by one percent. In models based on the consumption function, it is assumed that consumers avoid sudden fluctuations in consumption. When consumers expect that their income will grow during their lives, smoothing consumption, they will incur liabilities in their youth and pay them back when they are older. If consumers expect a temporary drop in income, they spend their savings and can also incur liabilities. In a transitory situation of an expected increase in income, they save or repay liabilities incurred earlier. In this model, consumption depends on physical assets, which manifest the effects of changes in income in each period, and on current income. It reflects an increase in the marginal propensity to consume out of housing wealth [Lis 2012, pp. 131–144]. Since residential real estate occupies a dominant position in the structure of households' assets, the search for a connection between accumulated residential assets and consumption seems to be fully justified.

Research on the impact of changes in the value of residential real estate on consumption is difficult. The difficulty is certainly due to the low availability of relevant data. In addition, housing property is a consumer good, which means that for its owner who does not intend to sell it the sense of real value of wealth may not change and will not affect consumption.

Despite the undoubted difficulties in measuring the wealth effect, studies generally confirm the theoretically correct dependencies that the marginal propensity to consume is related to the value of assets [for the review of research, see: Trojanek 2018]. Empirical estimates differ between countries, they are much higher in the United States than in other countries. Studies conducted in the United States show that the marginal propensity to consume is between 4% and 7% of total assets, i.e. financial assets and illiquid assets, including residential assets [Claessens, Kose 2017, p. 10], while the marginal propensity to consume as a result of a one percent increase in residential assets in Great Britain amounted to slightly above 3% [Muellbauer 2008 after Lis 2012, p. 133]. The wealth effect, measured by the propensity for consumption in relation to the asset value growth not only shows spatial differentiation but also diversification over time: after the first year, it is lower, its strength grows over a longer period of time [Żelazowski 2009].

Theoretically, residential assets should have a smaller impact on consumption than assets accumulated in the stock market, as they are less clearly related to future increases in the production potential [Mishkin 2007 after Claessens, Kose 2017, p. 10]. However, the research does not confirm this direction of the dependency. The marginal propensity to consume reacts more strongly to the value of residential assets than financial assets. On the one hand, changes in housing prices are perceived as less volatile than changes in share prices, on the other hand, residential assets usually form a greater part of total assets, which means that they

have a greater impact on household consumption decisions. For financial resources, some estimates suggest changes in consumption ranging from 0.03% to 0.07% [Claessens, Kose 2017, p. 10], others from 0.041% to 0.10% [Żelazowski 2009], while a one percent increase in the value of the housing stock resulted in an average 0.09–0.23% increase in consumption [Żelazowski 2009]. Changes in house prices are perceived as more permanent than changes in share prices and have a more pronounced effect on consumption than changes in capital assets, as confirmed by research results in the US, Korea or Hong Kong [Claessens, Kose 2017, pp. 10–11].

The impact of the housing wealth effect depends on a number of factors [Trojanek 2018], such as:

- The ownership structure of residential real estate. The wealth effect may have an impact on the consumption of property owners, it does not affect the consumption of tenants. On the one hand, an increase in the value of already owned residential assets positively affects the level of consumption, on the other hand, the pursuit of ownership may cause a drop in consumption. Households must for a long time save for their down payment, which is a prerequisite of granting a mortgage, and during its repayment for debt servicing costs.
- The population structure. Research shows that the impact of the value of residential assets on consumption is less pronounced in the case of elderly people. This may be due to the fact that the propensity for consumption can be strongly embedded in the culture of a given society. In some cultures, elderly people may show a greater tendency to increase consumption along with an increase in the value of residential assets. In others, the desire to leave property to future generations will not translate into an increase in consumption, being the effect of intergenerational assets transfers. Increased propensity for saving at the expense of current consumption may also result from prudential behaviour.
- The economic status of households. A lower level of affluence is accompanied by a lower housing wealth effect than in the case of households with a higher level of affluence. The group of wealthier households is responsible to the greatest extent for the impact of the marginal propensity to consume in relation to an increase in housing wealth,
- Institutional determinants, including the availability of external sources of financing or the possibility of unlocking capital accumulated in real estate. The solutions adopted in the credit market or tax regulations affect the demand for loans, which determines the demand for residential real estate, affects its value and consumption. In more liberalised financial markets, such as the US or Canadian markets, there is a greater impact of changes in the value of

housing wealth on consumption than in countries with less liberalised markets, such as the markets in Germany or Japan [Trojanek 2018].

An increase in the value of residential assets may lead to an increase in consumption not only through the wealth effect but also the security effect. In the financial sector, mortgage is considered a good legal form of securing receivables. Growing residential property prices increase creditworthiness of households, allowing an increase in consumption. The security effect is a manifestation of treating real estate as capital. This means that real estate is not only a physical element in the form of land and buildings but it also has a potential in terms of generating added value, providing a source of wealth. Capital lies dormant in real estate, it is dead, until it comes alive, it functions only in the physical sphere, not releasing the energy hidden within it. "Bringing it to life requires us to go beyond looking at our assets as they are to thinking actively about them as they could be. It requires a process for fixing an asset's economic potential into a form that may be used to initiate additional production" [De Soto 2002, p. 64]. One of the forms of bringing capital to life is the "unlocking" of funds expended for the purchase of real estate by taking a mortgage-secured loan. An increase in housing prices makes it possible to increase the creditworthiness of households. The acquired loan may be used for consumption. And vice versa: a downturn in the real estate market will translate into a fall in property prices, a decrease in the value of collateral, and a drop in consumption. Through the phenomenon of financial acceleration, negative phenomena are magnified, affecting real values in the economy.

The wealth and security effects allow us to conclude that there is a relationship not only between the situation in the residential real estate market and consumer demand but also between the situation in the residential real estate market and the situation in the entire economy.

The impact of the residential real estate market on the banking sector

High capital intensity of dwellings means that the satisfaction of housing needs is often financed from external sources, including mortgage loans. In 2010, 48% of respondents in Poland declared the financing of the purchase of a dwelling with a mortgage loan, 9% more respondents (57%) declared its purchase for cash derived from their own savings, 9% of respondents used financial resources from the sale of another property, 8% used funds transferred by the family and 3% used earnings from work abroad [Raport… 2010].

The ratio of mortgage loans to GDP shows a large scale of loans to meet housing needs: in the European Union, in 2017, this ratio ranged from 7.6% in Romania and 20% in Poland to 86.1% in Denmark and 91.2% in the Netherlands [Hypostat 2018]. This proves that in many countries a bank loan remains one of the main

methods of financing housing investments, shaping the demand for real estate and affecting the level of real estate prices.

The involvement of the banking sector in financing the real estate market has an impact on the security of the lender and the entire banking system. The solvency level of the banking sector is taken as the measure of its security. In the lending process, banks face a number of risks. The credit risk associated with the success of a given venture and the borrower's ability to repay debt along with interest is of decisive importance for the creditor's security. The level of this risk depends on the borrower's ability to service the debt, creditworthiness (including the willingness to repay the debt) as well as on the quality of the collateral (the quality of the property and the method of its valuation). The market risk, which results from fluctuations of real estate prices and the ability to sell real estate at a price accepted by the creditor which is similar to the market value which served as the collateral, is important for the lender. Another type of risk is liquidity risk, which means ease of leaving the market at a price close to the market value. Unfortunately, real estate is not very liquid. This means that in the event of the borrower's insolvency, the bank can wait for a long time to recover capital through the sale of real estate.

The mortgage loan affects the demand and supply side of real estate, affecting the level of prices. The impact of lending on price growth depends not only on credit volume but also on its structure: the proportion of credit directed towards financing the demand side (buyers of dwellings) and the supply side (developers). The preference of the demand side at the expense of the supply side accompanied by low price elasticity of supply accelerates the price increase, creating favourable conditions for the development of a price bubble.

The literature cites the behaviour of lenders leading to the phenomenon of crisis in the banking sector.[9] The classic example was the behaviour of lenders in the United States preceding the 2007–2008 crisis including [Łaszek 2006, pp. 19–21]:

- failing to see the catastrophe, which has its source in the rarity of crises (once in a generation). As a consequence, banks do not see the threat coming;
- exaggerating the catastrophe. In a crisis situation, banks and supervising institutions react excessively nervously, limiting the inflow of financial resources, which results in further reduction of demand, deepening the crisis;
- herd instinct, which manifests itself when the expansive lending policy of some banks is accepted by successive banks without due care for the quality of collateral or creditworthiness of borrowers. Under conditions of low interest rates, this leads to speculation, which is the effect of herd behaviour;
- moral hazard, manifested in the desire to transfer the effects of high risk onto other entities [Iwanicz-Drozdowska 2009, p. 33]. Lenders, credit rating agencies and borrowers who did not have adequate creditworthiness yielded

9 An overview of dysfunctions in the real estate market during the crisis is presented by E. Kucharska-Stasiak [2018].

to the temptation of financial abuse. Surrendering to the temptation of abuse by lenders was possible due to the development of new financial instruments. Their value was related to the mortgage portfolio. Among these derivative instruments, mortgage bonds, a debt-secured liability created by securitisation of debts, were of particular importance. The so-called credit default swap contracts were another derivative instrument. Thanks to the sale of these instruments, the percentage of loans held by banks and credit unions decreased: from approx. 55% in 1985 to 25% in 2009 [Bair 2010, p. 4], creating a false sense of security.

- bad banking practices. In the face of growing demand in the real estate market and an increase in real estate prices, banks ignored the threat posed by the possibility of the housing market crash. The collateral for banks was the expected increase in the value of houses for which mortgage loans were taken. The possibility of easily obtaining financial resources by means of securitisation of funds, which allowed for the continuation of lending, as well as the possibility of transferring credit risk onto another entity resulted in the acceptance of customers with increasingly lower creditworthiness [e.g.: Szyszka 2009, p. 13]. The instruments issued through securitisation had a very complicated construction, they were incomprehensible, and as those instruments were not traded on the market, they were not valued by the market. They were valued on the basis of mathematical models. Bogle called this a modern variation of alchemy [Bogle 2009, p. 79]. The refusal of appraisers to overestimate valuations triggered efforts to establish banks' own valuation companies, which undermines the independence of valuation [Stiglitz 2010, p. 103]. Borrowers were encouraged "… to continuously finance and refinance their homes, and to treat their houses as ATMs (borrowing against their value)" [Stiglitz 2010, p. 322]. Profits of brokers were the highest when they "conned" borrowers into taking the most risky mortgage loans: with variable interest rates and penalties for early repayment of debt" [Stiglitz 2010, p. 104]. Loans granted were often evidence of fraud, ignorance of customers was used against them, as they were encouraged to sign loan agreements with unfavourable repayment terms. Borrowers often signed them without understanding their content [Bair 2010, p. 43]. The factor stimulating banks' credit activity was the remuneration system based on short-term profits without taking into account long-term risks as well as shareholders' expectations of an increase in the value of shares. Banks were convinced that in the event of problems, the Federal Reserve and the Treasury Department would give them financial assistance [Stiglitz 2010, pp. 8–9]. Bank chairmen were convinced that their businesses were too big for the government to allow them to fail. The boom in the residential real estate market led to a change in lending policy in the banking sector: banks reduced the commercial credit pool expanding housing loans, thus increasing demand and increasing prices.

> The strong involvement of the banking sector in financing the real estate market poses a threat to its solvency in the situation of falling prices of residential real estate [Cunăt, Cvijanocić, Yuan 2018].
>
> The value of loan collateral decreases, while the costs of servicing difficult loans increase. In the face of borrowers' decreasing ability to service their debts, standards for granting new loans are tightened, which limits their supply. The fall in prices not only has a negative impact on the banking sector through the market of residential properties but also through the property development market. The drop in prices means a reduction in the profitability of the development projects already begun and funded with bank loans that, as a result, increase the pool of difficult loans, which in turn reduces construction activity and leads to a reduction in the supply of loans to the development and construction markets. This results in the deterioration of the financial situation of the banking sector. The credit policy of banks is affected not only by growing but also by falling prices of residential real estate. Falling real estate prices decelerate this sector's involvement in financing the housing market, which contributes to reducing demand and a further price decrease [Cunăt, Cvijanocić, Yuan 2018].

"IMF research shows that over two-thirds of 50 banking crises in the last decades were preceded by price slumps in the housing market" [Min 2014].

The strength of threats to the banking sector arising from the residential real estate market depends on the financing model of the housing market. In the universal banking model, in which mortgage loans are issued on the basis of short-term deposits, there is a particularly strong threat to the solvency of the banking sector. It is smaller in the mortgage banking model, where mortgage bonds are the basis for loans granted. The threat of risk escalation for the banking sector and the entire economy is brought about by the securitisation model. This happens when banks – instead of managing risk – become intermediaries transferring risk outside the sector. This mechanism makes it possible to increase lending, which leads to stimulation of activity in the real estate market, causing price increases often without proper care of the risk related to the repayment of liabilities.

The impact of the residential real estate market on the course of business cycles

The business cycle is the resultant of specific cycles occurring in particular spheres of the economy. An example of a specific cycle is the real estate market cycle. The real estate market cycle consists of two cycles: the demand cycle, driven by the business cycle, and the supply cycle, related to the development activity. Real estate markets are subject to strong cyclical movements occurring with uneven regularity.

By influencing macroeconomic variables, such as investments or consumption, the real estate market may stimulate the economy, it may also slow down the economy's entry into the recession phase [The Houses… 2002], and through strong links with the banking sector, it may destabilise this sector and the real

sector in the economy. "Macrofinancial linkages centre on the two-way interactions between the real economy and the financial sector. Shocks arising in the real economy can be propagated through financial markets, thereby amplifying business cycles" [Claessens, Kose 2017].

Strong dependencies between the real estate market and the banking sector mean that the mechanism of the emergence of business cycles and real estate market cycles is analysed through the prism of the links between the two markets [Muller 1995]:

- the physical property market, determined by the relationship between real estate demand and supply,
- the financial property market, which is represented by financial resources (own funds and loans) intended for the implementation of new projects or the purchase of already existing ones.

The individual phases of the physical property and financial property cycle do not have to run in a parallel manner. This is due to the difficulty in predicting demand, the long cycle of investment implementation, low transparency of the real estate market, as well as the competitiveness of other segments of the financial property market, mainly the securities market. In the trough phase of the business cycle in the physical property market, the market is suffering from oversupply. Demand for floor area falls, and at the same time a stream of new supply appears. It is the effect of previously launched development activities. The market attracts small capital invested in existing properties.

The phase of recovery in the economy will cause an increase in demand for new space, which will translate into a drop in vacant properties and an increase in rental rates, therefore the value of real estate will increase. When the prices of existing properties rise above the cost of their replacement, the market will attract new capital and developers will start new construction. The atmosphere of optimism exerts a significant influence on the attitudes of investors and developers. There is an increase in capital demand, intended for the acquisition of existing space, as well as for the construction of new floor area.

An increase in real estate prices leads to an increase in the market value of collaterals, reduces the risk for lenders and leads to an increase in their willingness to engage in financing the real estate market. This is helped, despite rising prices, by the decreasing ratio of loans and mortgages to the value of real estate for loans remaining to be repaid. An increase in the value of real estate may encourage the banking sector to finance further projects for which the property is a form of collateral. This encourages developers to initiate more risky ventures. The high share of external funds means that they transfer most of the market risk to lenders.

Even if physical property market activity declines – rental rates and vacant space stabilise and investors' interest in purchasing real estate decreases – the real estate market is still flooded with capital needed to implement previously launched development projects. The long cycle of implementation of development investments

and imperfect anticipation of future demand favours underestimating the risk of financing the real estate market by the banking sector, which means that despite the growth in vacancies, supply may continue to increase for several years. The supply cycle may cover two demand cycles. Confirmation of this thesis is provided by research that allowed us to recognise 10-year cycles in the development market, leading to strong oversupply which bypasses every second demand cycle [Coleman, Gentle 2001].

The inflow of capital from the banking sector is decisively stopped only when the real estate market enters the deepened phase of recession. This is a consequence of a decrease in the value of collateral and an increase in the risk for banks. The drop in the capital inflow will translate into a fall in demand and prices. As a result, the value of collateral may quickly fall below the amount of unpaid debts, resulting in the limitation of the lender' solvency.

Two research theses on the impact of the residential real estate market on the course of the business cycle were posed in the literature:

- prices of residential real estate have an impact on the course of business cycles. A rise in prices means an increase in housing wealth. Housing wealth and consumer spending are pro-cyclical [Ma, Li, Qu 2017].
- the course of business cycles is affected not only by the demand cycle through price changes but mainly by the supply cycle, measured by the size of housing investments (the number of dwellings built).

Empirical evidence did not provide unambiguous answers to support any of the theses. An overview of the research is contained in the work of Trojanek [2018]. The confirmation of the first thesis was, among others, the research carried out in the United States in the years 1975–2010. It showed a correlation between fluctuations in residential real estate prices and the business cycle: the correlation coefficient was 0.52 [Ma, Li, Qu, 2017]. The study has indicated that the importance of price decreases is greater than price increases for the course of the business cycle, which means that through strong links of the real estate market with the banking sector a drop in house prices may stimulate downward trends in the economy, which may result from relatively smaller price elasticity of supply compared to price elasticity of demand. While prices are falling, the market is still being supplied with new supply from previously launched projects. Numerous studies point to the rightness of the other thesis that the supply side has a stronger influence on the course of the business cycle [Lis 2012, pp. 48–88]. An important voice in this discussion can be found in the considerations of E. Leamer [2007]. Leamer noted that the recession in the economy was often preceded by a breakdown in supply cycles [Leamer 2007, p. 164]. The axis of considerations is the statement that the decline in demand in the housing market does not result in adjusting prices to the new market situation. Prices of dwellings remain rigid. The owners of dwellings do not want to sell them at a lower price, remembering historical prices. This means that in the case of a decrease in housing demand, the adjustment will occur on

the side of the number of dwellings delivered, not on the side of price decreases. Changes in the number of dwellings are abrupt, the amplitude of the number of houses sold is much larger than the amplitude of fluctuations in house prices. As a consequence, the decline in the number of dwellings will result in a decline in the number of employees in construction, and through the multiplier effect will translate into a decline in employment in industries cooperating with construction.

The channel of linkages between the housing market and the mortgage market reveals the possibility of negative consequences in the context of over-investment in the real estate market by the banking sector, translating into a macro-level economy. This has prompted analysts to put forward a thesis that changes in residential property prices combined with a lending campaign help to predict financial crises [Borio, Drehmann 2009, pp. 29–46]. At the same time, research shows that the predictive power of price changes of these properties is slightly weaker than that of share prices which turn out to be better leading investment indicators than GDP or consumption [Claessens, Kose 2017, p. 11].

The analysis of numerous crises that occurred in real estate markets has revealed that they translated into the economy in those countries in which the banking system in an uncontrolled manner engaged in financing the real estate market. The real estate market cycles did not translate into the collapse of the banking sector in countries where the banking systems were healthy. This is confirmed by research carried out by the International Monetary Fund [Hilbers, Lei, Zacho 2001]. Examples are the real estate market in Singapore and Hong Kong [Hilbers, Lei, Zacho 2001]. In all analysed cases of banking crises, housing prices rose strongly, realistically more than 20%, and then began to fall (by over 15% in 2 years), preceding the crisis in the banking sector. Real estate prices peaked 2–3 years before the crisis in the banking sector began. On average, housing prices fell by 35%, but their decline was a gradual process – lasting from 3 (Canada) to 8 years (Japan). These studies have led to interesting conclusions: it is not the real estate market that is the source of the banking sector crisis, and as a result a crisis of the economy. Housing investments have too little share in GDP. Since they are very sensitive to interest rate fluctuations, the representative of the European Central Bank sees sources of a crisis in changes in these rates [Smets 2007]. The real estate market therefore has an indirect involvement in the emergence of the crisis phase. The source of its emergence is the deregulation of the banking sector and its excessive involvement in financing development activities and capital investments in this market at low interest rates, in isolation from the rental market.

The history of real estate market cycles confirms that the stronger the link between banks and the real estate market, the more strengthened the cycles in this market are. The growing importance of the financial sector and globalisation have increased the scale and frequency of crises in the real estate market [Łaszek 2006]. There is a strong correlation between the dynamics of property prices and credit growth. Real estate price increases are preceded by an increase in bank credit,

while a drop in prices is preceded by a strong limitation of credit growth. This is confirmed by the study of 11,000 properties [Hilbers, Lei, Zacho 2001, pp. 8–27]. It has also revealed the possibility of a strong relationship between the fall of prices in the real estate market and the emergence of problems in the banking sector. The crisis in the banking sector, in turn, causes a further decline in property prices, which means that the banking sector may exacerbate the crisis phenomena in the real estate market.

The impact on the GDP level

The relationship between asset prices, including real estate assets, and macroeconomic performance is at the centre of macro-financial linkages, revealing two-way interactions between the real economy and the financial sector [Claessens, Kose 2017, p. 1]. There are two-way dependencies between the real estate market and the entire economy: recovery in the economy stimulates the real estate market, while economic growth should be driven by an increase in residential real estate prices. The impact of the whole housing sector (the housing market and the construction market) on GDP through the undertaken investment activity, consisting in the construction, reconstruction, and repairs of the housing stock **(investment effect)** as well as through expenses related to housing services is indicated. The impact is the greater, the greater the financial integration of economies [Loutskina, Strahan 2015]. An increase in housing prices as the effect of demand growth increases the interest of developers in undertaking new development projects, stimulating the construction market.

According to data from Eurostat, the total share of housing construction and consumer spending on housing services in generating GDP in 2014 amounted to 13.8% in Poland, 18.3% in the euro area and 18.1% on average in EU countries. In 2017, residential real estate accounted for 17.0% and commercial real estate for approx. 12% of GDP. Appreciating the impact of construction on GDP, it should be noted that mostly consumption spending is responsible for the share in GDP: respectively 11.4% in Poland, 13.3% in the euro area and 13.5% on average in the EU [after Trojanek 2018, p. 18].

The value of the residential real estate market is also evidenced by the value of the housing services stream, estimated on the basis of the value of market rental transactions and the estimated share of taxes on residential real estate in relation to GDP. In 2017, the value of the stream of housing services[10] was approx. 12% of

10 The value estimated as the product of residential floor area and the average rental rate at the end of the year according to the NBP database for individual 16 cities examined. For the rest of Poland, the rental rate was estimated as 50% of the average rental rate set for 10 cities [Raport o sytuacji... 2018, p. 16].

GDP, remaining stable for four years [Raport o sytuacji… 2018, p. 16], while the value of services generated by commercial real estate amounted to only 0.7% of GDP [Raport o sytuacji… 2018, p. 16]. The estimated share of taxes on residential and commercial properties was approx.1.2% of GDP [Raport o sytuacji… 2018, p. 17].

Despite the links between the residential real estate sector, understood as the construction market and the housing market, this sector was not adequately appreciated by macroeconomists [Min 2014]. It was not until the great crisis of 2007–2008 that the role of a rise and fall in house prices in the financial stability of the banking sector and the performance of the real economy was revealed. The experience of the crisis meant that despite the relatively small share of the real estate sector in generating GDP, it was included in general equilibrium models [e.g.: Kaplan, Mitman, Violante 2017].

Chapter 2

The evolution of European housing systems in the post-war period

2.1. Housing policy models

In the discussion on housing policy, as a research field, an issue that causes differences in views and also underlies disputes remains the degree of state interference in the mechanism of functioning of residential real estate markets. The concepts of this intervention and types (models) of housing systems often referred to as housing policy models, have been highlighted [Hoekstra 2003].

Interest in models of housing policy dates back to the 1960s. For Western European countries, D. Donnison distinguished three models: embryonic, social, and comprehensive [Cesarski 2010, pp. 23–33]. In the embryonic model, in which housing is treated as an object of consumption, housing investments limit expenditure on fundamental areas of the economy. The state takes a passive role in meeting housing needs. This model was identified in Greece, Portugal, and Spain. In the social model, market conditions decide about satisfying needs; public assistance is targeted at people unable to meet housing needs on the open market. This model occurred in Great Britain, Ireland, and Switzerland. In the comprehensive model, housing investments are an essential growth-forming factor; the state takes over responsibility for meeting the housing needs of all citizens. This model was identified in Germany, the Netherlands, Denmark, Norway, Sweden, Iceland, and Finland.

For centrally planned economies, Andrzejewski, cooperating with Donnison [Cesarski 2013a, p. 113], proposed a different division of housing policy models. He distinguished the administrative-subsidy and accumulation-intervention models. Both models were based on the concept of the non-productive function of investment outlays incurred for housing, which meant that these outlays were not included in the economic growth models. The administrative-subsidy model, of an authoritative nature, based on public ownership of resources, a centralized system

of accumulation and allocation of funds for housing, was widely used in Central European socialist countries until the 1970s. The creation phase, the division phase, and the use phase were co-financed from the state budget. In this model, the price of a dwelling and the level of rent were low;[1] in the extreme case, the whole amount could be covered by the collective consumption fund [Andrzejewski 1987, p. 486]. In 1958, rents and additional fees charged by administrations in the public housing stock in Poland, accounted for 1% of households income in Poland [Litterer-Marwege 1961]. The low share of housing expenses made it possible to keep wages low. This model did not take into account individual housing preferences. Free or close to free receipt of housing triggered unsatisfied housing demand.

The accumulation and intervention model also permitted other forms of housing rights. It allowed individual preferences to be taken into account [Andrzejewski 1969, pp. 316–322]. It began to be implemented in Poland, Czechoslovakia, and Hungary at the turn of the 1960s and 1970s. An important assumption was to base the development of housing construction on the growing share of private resources in financing housing, often in the form of housing cooperatives. Housing cooperatives have developed in Czechoslovakia, Hungary, and Poland. For example, in former Czechoslovakia, households financed about 18% of construction costs. In Poland, 50% of construction costs were funded from the state budget, a cooperative member was obliged to make a housing contribution of 10–15% of construction costs, and the apartment fee included maintenance and repair costs installment, loan repayment installment. The fees for cooperative apartments were five times higher than the rents for the so-called housing units [Kaczorowski 1963]. The accumulation and intervention model did not contribute to a significant acceleration of housing construction. Low rent rates had negative economic and social effects. They harmed the ability to maintain the housing stock in good condition [Kucharska-Stasiak 1990]. Housing expenditure created an uneven burden on population. The model led to social stratification, persons who resided municipal stock gained bonuses concerning persons living in a cooperative stock.

Housing policy changed dynamically in the 1980s in western countries and in the 1990s in post-socialist countries. In the West, it was the effect of the so-called welfare state crisis,[2] beliefs about the unreliability of the state;[3] in post-socialist

1 In Poland, by the Decree of the National Liberation Committee of 7.IX. 1944 on housing commissions (Journal of Laws No. 4, item 18), rents for flats were frozen at the level of 1939.

2 The idea of a welfare state was developed in the 1950s and was popular until the 1980s. Since the 1980s, attempts have been made to limit the development of the welfare state. Among others, external factors were invoked, including economic globalization, which caused pressure to reduce costs, including social spending [cf. Szarfenberg 2015].

3 The theory of state unreliability was developed within the framework of public choice theory, classified as institutional economics. It deals with research on the demand and supply of public goods. This theory, developed, among others by J. Buchanan focuses not on market flaws, but the flaws of government solutions regarding economic issues. The creators of this

countries, it was mainly the effect of political transformation. The slogan "less state, more market" paved the way for a lively discussion of housing policy models, contributing to the extension of their classification. It was dependent on the methods used to analyze housing systems.[4] Two of these analyzes: divergence analysis, called the indirect method, and convergence analysis, called the universal method, opened the way for rich classification [Kemeny, Lowe 1998].

In the indirect method, idealized patterns have been created against which individual housing systems are compared. Three main typologies of these models have been distinguished in the literature [Lis 2005]:

a) typology of J. Barlow and S. Duncan;
b) typology of J. Kemeny;
c) J. Doling's typology based on G. Ambrose's typology.

In 1994, Barlow and Duncan, developing D. Donnison's classification [Cesarski 2010, p. 26], distinguished four models: rudimentary, liberal, corporate, and social-democratic. The designation was based on criteria such as the level of housing subsidization, control and regulation of apartment prices and rents, housing allocation and organization of new housing construction. The rudimentary model is the equivalent of the embryonic model in the D. Donnison's classification. It occurred in southern European countries, such as Greece, Spain, Portugal, Italy, especially in the south part. It was characterized by a high level of housing ownership and a small stock of social housing. The liberal model had a market-oriented attitude, the role of the family was marginal and the state also interfered and helped in a small way. The state was supporting only a small part of the low-income society. Such a model exists in the United States, Australia, to a lesser extent in Great Britain and Ireland. In the corporate model, the state played an active role at the stage of providing housing. This model was applied in Austria, Germany, Italy, and Belgium. Social goals were strongly emphasized in the social democratic model.

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concept [Buchanan, Tullock 1962] see the drawbacks of solutions in the fact that individuals making public choices make them primarily based on their own interests [see Legiędź 2005, pp. 277–283].

4 Lis gives three methods for testing housing systems [Lis 2005]:
1) the particular method, which is empirical, treats each country as a unique system, which makes it impossible to apply the results of research under other housing systems.
2) the indirect method, which uses the divergence analysis, enables typologies of individual housing systems, resulting from cultural, ideological, political conditions of the economy, or which are the result of using existing theories of economics and/or sociology. This method makes it possible to translate research results into similar (according to the criteria used) housing systems.
3) the universal method using convergence analysis. It assumes that all states are perceived as subject to the same overarching imperative of change. After meeting certain assumptions, it is justified to transfer solutions between housing systems. The analysis of housing systems based on the indirect and universal method allows distinguishing housing policy models.

The purpose of resource allocation was to meet housing needs. The role of the family and the market was marginal; the role of the state was crucial; it interfered in determining prices and rents of apartments. Corporate and social-democratic models correspond to the comprehensive model of D. Donnison.

The discussions on the social democratic model of housing policy emphasize the need to base it on:

1. Stabilization measures, both concerning the real estate market (suppressing price fluctuations with the help of various housing policy instruments, depending on the phase of the housing market cycle), as well as in the context of individual households (assistance in the process of investing in their future, primarily through education and professional development).
2. Social solidarity mechanisms. They were visible e.g., in care for the quality of the neighborhood.
3. Striving to control access to public rental housing and strengthening self-esteem by providing "regenerative social assistance" that enables housing choices in line with one's lifestyle [Clapham 2006, pp. 55–76].

Kemeny used the indirect method, i.e., the divergence analysis. The basis for distinguishing models is the role of social housing in the housing stock. He identified two models: dual and unitary models. In the dual model, which occurred mainly in the Anglo-Saxon countries, the state and private actors participated in satisfying the needs without competing with each other, because they had different recipients. The public sector supplied only the most vulnerable part of society. In the unitary model, which occurred, among others in Sweden, the Netherlands, Germany, and Switzerland, the public actors, which competed with the private actors, played a significant role.

A more comprehensive approach is presented by the typology used by J. Doling, who distinguished the liberal, socialist, corporate and Asian models. In the liberal model, housing was perceived as a private good; the role of the state was insignificant. The allocation of the resource was decided by the market, ownership or private rental housing dominated. In the socialist model, identified in post-socialist countries, the initiator of development, the course of the process of building and distributing housing units was the state, setting rents at a minimum. In the corporate model distinguished by J. Doling, which operated in Sweden, Denmark and the Netherlands, the state played a significant role in creating a new supply of residential real estate. In the Asian model, which appeared in Hong Kong and Singapore, Taiwan, Israel, and South Korea, the state was responsible for shaping the environment conducive to housing development; the market principles were subject to the construction and consumption stages.

The use of a universal method, based on convergence analysis, seeks to formulate universal rights that determine the development of housing systems regardless of cultural, political, and social differences. The application of the universal method has become the basis for the World Bank experts (S. Angel and S. Mayo) to distinguish

the housing market model for the countries of transformation [Lis 2008, p. 30]. The central axis of the model was basing the development of the housing sector on reducing the impact of the welfare state and promoting the privatization of the housing stock. In this model, the state assumed the role of the housing sector coordinator, which also improved its functioning. This model only provided for minor social assistance in the form of housing allowances and public housing, addressed solely to the most vulnerable market participants. The model promoted three instruments on the demand side (protection of property rights, development, and regulation of housing financing institutions and rationalization of housing subsidies) and three supply-side tools (regulations regarding spatial development, construction, and maintenance of technical infrastructure devices and organization of the housing sector) as well as one administrative instrument in the form of the development of institutions enabling and supporting the management of the housing sector [Lis 2008, p. 27]. The use of individual instruments was conditioned by the level of economic and institutional development.[5]

The convergence method was also used to construct in the early 1990s an extensive housing system model for former centrally controlled economy countries. The authors of this model, J. Hegedus, and I. Tosic, showed that in Eastern European countries, similar assumptions were made regarding housing policy [Hegedus, Tosic 1996]. Decisions considering the number of flats delivered, their type and location were taken centrally, the stock was created by state-owned enterprises. The allocation criteria were housing needs and not the financial resources of households. No financial barriers were present at the stage of housing allocation and usage due to low rents, exclusion of the market mechanism, and private ownership [Lis 2010, p. 30]. The assumptions of this model were never fully implemented. Low activity of countries in the area of housing resulted from the priority given to the development of the industry. Housing in these countries was treated as part of the social welfare sector and not as part of the economy being assessed for economic efficiency. The deficit of financial resources allocated to housing intensified the housing deficit. The remedy was private ownership and admission of the market mechanism to housing. The development of housing cooperatives and individual housing was a result.

The transition to a market economy was accompanied in these countries by conventional processes and problems in housing. There were also differences between the conditions for the development of post-socialist countries, which allowed the separation of three groups: the Baltic States, reformist countries of Central Europe

5 The effect of these assumptions was a distinction of four groups of countries: (1) countries with low national income (Tanzania, Bangladesh), (2) highly indebted countries with middle national income (Argentina, Brazil), (3) former countries with a centrally planned economy (countries Central and Eastern Europe, Southeastern Europe and the Baltic States, (4) a group of other middle-income countries (South Korea, Malaysia).

and the countries of Southeastern Europe.[6] This division was used, among others, to study changes in the development paths of housing systems in post-socialist countries [Soaita, Dewilde 2017]. The authors concluded that despite the passage of years, existing groups continue to develop in their own way "*running on parallel tracks*". Mainly, a common element was the give-away privatization, which allowed the withdrawal of the broadly understood state from housing obligations towards citizens and caused a fundamental change in the ownership structure – a massive increase in the share of private owners, but without a significant increase in mortgage burdens. This phenomenon is one of the most characteristic elements of the housing markets of post-socialist countries. The differences concerned, among others, changes in the public housing stock. At least two models of reforms of the public housing for rent were used [Lis 2008, p. 34]. In countries such as Bulgaria, Lithuania, Romania, Slovenia, and Hungary, a residual model of public housing stock has been created. It was characterized by a small share of public dwellings for rent and a slight increase in rents. The second model, called the holistic model, was characterized by a large share of this public housing in the stock in general and high rent increases.

One of the significant approaches used in recent years to classify housing models is based on housing wealth accumulation regimes. This criterion does not exclude the rule used so far, based on the degree of state intervention, it is its complement. It seems that the relationship between housing and wealth is one of the fascinating and topical issues that are part of the fundamental problems of modern capitalism [Harvey 2005; Ronald, Dewilde 2017]. For decades, housing policy has been a part of political systems. However, its practical application has generated numerous economic and social problems, as evidenced by the widely repeated opinion on housing as an unstable pillar of the welfare economy [Torgersen 1987]. Transformations in the approach to housing rights have led to a new look at the role and importance of the housing market.

The approach based on housing wealth accumulation is evolving under the influence of new economic, social, and political phenomena. The main criteria on which it is based are the level of ownership and financing method, which is related to the investment significance of residential units. The earlier version highlighted five separate ways of housing wealth accumulation: developing the Mediterranean, developing privatization, restricted rental, regulated expansion, and liberal expansion [Dewilde, De Decker 2016]. In a later version, however, the authors have already indicated seven groups of countries with separate housing models [Wind, Lersch, Dewilde 2017]; there are: regulated rental, privatized rental, regulated ownership growth, liberal ownership growth, family ownership, privatized

6 The first group includes Lithuania, Latvia, and Estonia; the second includes Poland, the Czech Republic, Slovakia, Hungary, Slovenia, Croatia, and the last includes Bulgaria and Romania, taking into account the countries currently belonging to the EU.

ownership, and liberal ownership (see Tab. 2.1). This division indicates owners of dwellings (their age and price paid for a dwelling), the size of benefits gained from the housing market growth, as well as the possibility of incurring losses resulting from the negative state of the market.

Table 2.1. Accumulation of housing wealth and the dominant way of possession of housing units

Housing wealth accumulation systems	Country	Ownership rate (%)			
		1960	1980	2010	2017
Regulated rental	Germany	29	30	53	51
	Austria	38	52	57	55
Privatized rental	Estonia	n/a	26	86	82
	Poland	n/a	36	81	84
	Czech Republic	n/a	53	79	79
Regulated ownership growth	Belgium	50	59	72	73
	France	42	47	62	64
Liberal ownership growth	Denmark	40	56	67	62
	Sweden	47	58	56	65
	The Netherlands	30	42	67	69
Family ownership	Italy	46	59	72	72
	Portugal	45	52	75	75
Privatized ownership	Slovenia	n/a	69	78	76
	Hungary	n/a	71	90	85
Liberal ownership	Spain	53	73	83	77

Source: own work based on: [Wind, Lersch, Dewilde 2017, p. 628].

Models having the rental character in the past differ significantly currently. Some Western European and post-socialist countries can be identified here. Previously limited access to mortgage loans and a wide rental offer that was not socially negatively perceived caused the popularity of the rental segment. Germany and Austria used housing policy instruments aimed at supporting the tailored quantitative and qualitative structure of the rental sector, the system of financing the acquisition of property was rather conservative compared to other countries [Wind, Lersch, Dewilde 2017]. At present, the popularity of ownership is higher than in the 1980s but much less compared to other countries, in particular, post-socialist countries, whose housing policy was also previously geared to supporting the rental sector. Currently, post-socialist countries have the highest share of owners, but this is due to the way privatization was carried out. It can be pointed out that problems may exist in generational groups – those who took part in privatization are in a much better position than younger generations who have to rely on the

market system. Of course, intergenerational transfers cannot be forgotten here. Still, the problem may be the fixed location of the housing stock and the mismatch of the spatial distribution of the housing stock to the current housing needs resulting from socio-economic conditions.

Two models of ownership growth – regulated and liberal – cover specific countries in Northern and Western Europe. As a part of the post-war reconstruction policy, the ownership was stimulated in these countries. However, the rental segment was also developed. In the Scandinavian countries, solutions were used to enable the purchase of housing for the less well-off. In Denmark, the Netherlands, and France, the deregulation of the financial market resulted in the development of mortgage credits access (thanks to mortgage-based securities, an extension of the repayment period, and an increase in the LTV ratios). It was possible to purchase dwellings by at least middle-income people.

A family ownership model that applies to selected Southern European countries is the traditionally supporting private ownership model. In these countries, the role of the state in meeting the housing needs of citizens was limited; the social rental sector was small; the housing stock was privatized after World War II. Lack of a well-developed financing system, tolerance for lawlessness in housing construction meant that family support was of fundamental importance [Allen 2006]. Despite the development of the financing system and reduction of tolerance for lawlessness in housing construction, in the absence of a developed social rental sector, this model still condemns some potential buyers, in particular, young ones, to using family support.

Hungary and Slovenia are classified as a privatized ownership model. The reason is the high level of ownership in the past. There was a need to use family support after the state withdrew from housing assistance and extensive privatization resulting in a high level of ownership.

Spain is the only country representing the liberal ownership model. It was so classified because of the distinctness of the transformations Spain experienced in the 1990s. Liberal financing rules for the housing market were introduced there, which contributed to the increase in demand for flats and caused a construction boom [Cano Fuentes et al. 2013]. The current family ownership model has evolved into a model based on the financial system (liberal ownership).

Discussion on model classifications, especially in terms of terminology, is still ongoing [Cesarski 2010, pp. 23–33]. It is recognized that the typologies of housing systems are in the development phase both at the stage of theoretical assumptions and applications [Lis 2008, p. 23]. Indeed, one of the factors conditioning the direction of discussion and introducing further changes in housing policy models is the experience of the global financial crisis of 2008. In the period preceding the crisis, euphoria in the housing markets on both the borrowers and lenders side caused the price bubble phenomenon, the value of individually granted mortgage loans increased. The abuse of mortgage lending in order to increase housing ownership

created a crisis. The collapse of the housing markets, resulted in an increase in household indebtedness, a decrease in the availability of mortgage loans, which put into question the concepts of satisfying needs only by acquiring ownership, especially by middle-income households. These conditions may result in a revival of housing policy models underlining important role of public or social housing [Polakowski et al. 2017]. Changes in housing policy models show the significant impact of changes in political, economic concepts. Adopting the wrong directions of housing policy is a part of the false paradigm of economic growth [Cesarski 2013b].

2.2. Housing policy instruments

The implementation of adopted housing policy is based on the use of specific instruments; due to their wide variety their classification, which would comprehensively and unambiguously cover them all, is difficult. One of the most commonly used criteria to distinguish individual housing policy tools is whether they affect the demand or supply-side [Clapham et al. 2012]. However, this approach is not without flaws, because some instruments belong to both classes, depending on the actors using them. Other classification criteria include, for example, support for certain types of possession or the openness of support [Salvi del Pero et al. 2016].

The list of the most popular housing policy instruments is presented in Table 2.2. The most extensive selection of solutions is visible in the category of ownership support, eight different tools are listed here. According to OECD research, ownership support is the most common instrument of housing policy; even if the state declares support for the rental housing sector, it also uses tools to facilitate access to ownership [OECD 2014]. Arguments of the well-being of households – owners and the real estate market environment are used to ideologically support such action [Glaser 2011; McCabe 2016]. While it cannot be overlooked that for poor households, ownership can be a burden beyond the benefits obtained [Norris, Winston 2011; Norris, Coates 2014; Köppe 2017]. Another argument supporting ownership is the opportunity to use it as a reverse mortgage [European Commission 2015; Müller 2019]. The accumulation of housing assets by older people who have financial problems at retirement age and are reluctant to change their place of residence, allows them to strengthen financially by using a reverse mortgage. However, there are also negative sides of such a solution [Fornero, Rossi, Brancati 2016].

It should also be noted that support for acquiring ownership with limited supply generates price increases, which limits the availability of housing for the less well-off. Additionally, low liquidity of real estate and high transaction costs, also limit mobility when seeking work.

Table 2.2. Housing policy instruments

Category	Housing policy instruments
Homeownership subsidies	Grants for access to homeownership
	Financial assistance for access homeownership
	Tax relief for access to homeownership
	Construction subsidies for owner-occupied housing
	Rent-to-buy schemes
	Relief for distressed mortgages
	Subsidies for energy efficiency and housing regeneration
	Taxation of residential housing
Housing allowances	Housing allowances in cash and vouchers
Social rental housing	Social rental housing
	Taxation of social rental housing
	Construction subsidies for social housing
Rental support and regulation	Construction subsidies for rental housing
	Taxation of rental housing
	Tax relief on paid rent for tenants
	Rent controls in the market rented sector
	Rent guarantees
	Tenancy law

Source: own work based on: [Salvi del Pero et al. 2016, p. 29].

A closer look at the available housing policy instruments requires a brief description. As indicated earlier, basically, every country used tools to promote ownership. In this group, eight possible solutions are listed: grants for the purchase of property, financial assistance in access to ownership, tax relief, construction subsidies, rent-to-buy, aid in the event of problems with mortgage repayment, subsidies for energy modernization and regeneration, method of taxing residential real estate.

Grants for the acquisition of homeownership are in the form of one-off financial support. Financial assistance, however, is related to the use of a mortgage by the beneficiary and may consist of lower than market interest rate on a housing loan, a guarantee granted to a lender by a public actor, and assistance in collecting the own contribution by the borrower. Another area where there is public support for homeownership is tax policy. It can take the form of tax relief in taxes and fees paid for the transfer of property (e.g., stamp duty, court fees) and the possibility of making deductions from income before tax calculation or deductions from payments related to housing loan service.

Assistance for the supply side in the form of subsidizing housing construction is subject to many legal reservations, as it cannot lead to distortions of competitiveness and the occurrence of state aid. Another method of support – the possibility of acquisition of shares in the ownership of a dwelling allows for gradual access to ownership. In this case, there is no need for a significant expenditure or taking a mortgage credit. This instrument can be particularly crucial for those households that do not have creditworthiness and aspire to be owners.

The global economic crisis has highlighted the problem of being unable to pay debts, including mortgages, in the event of an economic downturn. In response to this problem, households with housing loans received instruments preventing evictions. Specific legal regulations may freeze auctioning for debts or otherwise help owners in a difficult situation.

Subsidizing the improvement of energy efficiency and regeneration is another instrument among those supporting homeownership. This instrument is vital for preventing climate change and particularly applies to less affluent households. These households would not be able to replace or modernize heating systems using only their means.

The second group of assistance instruments is housing allowances in the form of cash or special vouchers. They are used to help households cover the housing maintenance cost. The amount of benefits depends on housing costs and household size. Families should meet specific criteria, most often, their income may not exceed a particular limit, and usually, the size of the flat may not exceed a given area. In some countries, assistance in the form of housing allowances is granted irrespective of the beneficiary's type of housing rights, i.e., the owner may also receive it. The differences between the individual regulations also apply to the payment method; often, allowances are passed on directly to the owner of the housing unit or the manager. This housing policy instrument has many variations, and the effects also differ [McCrone, Stephens 2017; Howenstine 2017]. It can be pointed out that the use of housing allowances does not mean stigmatization, which is often associated with living in the social housing stock. The beneficiary chooses the place of residence freely. The literature indicates some negative aspects, primarily related to the danger of an increase in rents due to the awareness of the owners of the housing stock that the costs will be borne by the public entity [Laferrère, Le Blanc 2004].

The third group of housing policy instruments concerns the social housing stock. Tools for distributing, taxation, and supporting construction activity of social housing have been distinguished here. As indicated in section 2.1, within the framework of various housing models, two main systems have been identified regarding the role of social housing stock – universal and residual. However, in practice, there is a mix of elements appropriate for each of them. The first – universal – was characterized by the widespread availability of social housing. This opportunity existed due to the size of the social housing stock and the price of housing service. An important factor was the competition with the private segment of rental

housing [Kemeny 1995]. This model was implemented in Sweden; its elements were also visible in the Netherlands and Denmark. Its advantage was the reduced size of stigmatization resulting from living in the social housing stock (mixing tenants from different social groups with different incomes). On the other hand, the residual system consisted of allocating social housing to a limited group of people [Szelągowska 2011].

An important factor that has appeared in recent years and significantly affects the approach of public actors to the implementation of tasks in the form of housing assistance was the formulation by the European Commission of the definition of social housing [Communication from the Commission 2012]. This definition narrowed social housing to shelter for the most vulnerable households. This approach allows classification of social housing as services of general economic interest, and state aid, compensating losses caused primarily by reduced rents, may take the form of a reduced price for land for social housing, tax privileges, or loan guarantees. The definition adopted by the EC was the result of problems that appeared at the interface between the need to maintain competition and state aid [Priemus, Gruis 2011]. However, this means that changes to housing systems have to be made.

Differences between individual solutions concern, apart from social housing stock size and distribution, also who is to provide it and at what price. In many countries, actions are currently underway to limit the importance of public actors as stock owners and to encourage private investors to participate in the provision of social housing. For years non-profit entities have been building and managing such housing [Fields, Uffer 2016; Poggio, Whitehead 2017].

In many countries, the local authorities are the actors responsible for helping to meet housing needs; they can apply for funding for the creation of new housing and modernization of the existing one. Co-financing may also be granted directly to private actors that provide social housing stock (it may also take the form of lowering the price of land, granting non-commercial loans, tax breaks).

The creation of a social housing stock does not end the problems associated with it, because the question of the cost effectiveness arises – this is also related to the housing allowance system. Social housing tenants are currently by definition households with limited financial capabilities; on the other hand, funds are needed to manage and maintain the technical standard of buildings [Scanlon, Whitehead, Arrigoitia 2014].

The last group of housing policy instruments is the regulation of rents and support in paying them. Here are subsidies for new rental housing construction, taxation of privately rented apartments, tax reliefs for rents paid by tenants, rent control instruments, guarantees of rent stabilization and residential tenancy law. In general, the measures listed here can be summarized as existing in different forms for decades, depending on the political goals and housing models. Issues related to rent control were subject to changes resulting from ideological, political, and economic differences. Similarly, various tax policy solutions can stimulate or

destimulate the emergence and functioning of a private rental housing stock [Arnott 1995; Balchin 2013; O'Sullivan, De Decker 2007].

The implementation of the housing policy requires the use of at least several instruments at the same time, according to OECD studies conducted in 29 countries, the smallest number of tools used in one country is 6, which indicates the comprehensiveness of the problem [OECD 2014].

The most commonly used instruments were housing allowances, co-financing for energy efficiency improvement and regeneration, as well as financial assistance in the acquisition of homeownership. The least frequently used were tax privileges for tenants, rent-to-buy schemes, co-financing of social housing, and a guarantee of the rent level [OECD 2014].

2.3. Socio-economic conditions for the development of housing markets from the 1950s to the 1980s

Looking from the perspective of not an individual country but the group of countries that currently constitutes the EU, some similarities and differences in socio-economic and political determinants that have caused specific changes in the quantitative and qualitative structure of their housing resources can be seen. In Western Europe, housing has become a state matter in the face of the universal post-war pursuit of societies to improve living conditions and the recognition that every person has the right to decent housing, which due to market errors was not possible without public intervention. The influence of communist and socialist theories – seen as a threat by Western states – implemented in practice was also not without significance. As a result, there occurred de-commodification of housing services, which manifested itself in the form of market regulation, e.g.: by introducing rent control in private housing resources or taking over the obligation of providing housing (social housing). The path of countries in Southern and Central Europe was different. The basic question– the scope of assistance and its size – was an ideological and political issue. Hence, there existed specific groups – clubs – of countries with similar assumptions regarding the housing policy, and we can observe the directions of the evolution of their policy until modern times.

Conducting an analysis of the directions of changes as well as similarities and differences in the solutions used and their results requires some simplification, a certain mental framework stemming from the researcher's choice. The frame of reference for this publication is the transformation of the ownership structure of the housing stock seen as the basic element of the institutional environment.

2.3.1. Post-war demographic determinants

The effects of World War II were not the same for all European countries, in some countries the housing stock was seriously damaged, and many countries experienced migrations from the countryside to cities due to the development of industry. Moreover, the birth boom was visible. Border changes and related great migrations also had an impact on the housing situation and policy. The pressure to satisfy the basic need for shelter was very strong in some countries, yet it was realised differently, depending on the hierarchy of issues adopted in the national policy.

The analysis of historical demographic data indicates that in the years 1947–54 several million inhabitants were added to the population of France, West Germany, Italy, as well as Poland, and the population of the Netherlands, Spain and the United Kingdom also significantly increased – see Table 2.3. In the following years, this trend continued, which meant the need to take measures in order to facilitate access to housing.

Table 2.3. Population changes in European countries from the 1930s to the 1970s

Country	Population (millions)					
	1937	1947	1954	1963	1971	1979
1	2	3	4	5	6	7
Austria	6.7	6.9	6.9	7.2	7.4	7.5
Belgium	8.3	8.4	8.8	9.3	9.7	9.8
Bulgaria	6.2	7.0	7.5	8.0	8.5	9.0
Czechoslovakia	14.4	12.1	12.9	13.9	14.5	15.2
Denmark	3.7	4.1	4.4	4.6	5.0	5.1
Finland	3.6	3.9	4.2	4.5	4.7	4.7
France	41.9	41.0	43.0	47.8	51.2	53.5
Federal Republic of Germany*	(67.8)	(67.3) 45.3	49.5	55.4	59.1	61.3
German Democratic Republic		22.0	20.5	17.0	17.0	16.7
Greece	6.9	7.5	7.9	8.5	9.0	9.4
Hungary	9.1	9.1	9.7	10.0	10.4	10.7
Ireland	2.9	3.0	3.0	2.8	2.9	3.3
Italy	42.6	45.3	47.6	50.6	54.0	56.9
The Netherlands	8.6	9.6	10.6	11.9	13.2	14.0
Poland	34.4	23.8	26.5	30.6	32.7	35.2
Portugal	7.4	8.3	8.7	9.0	9.0	9.9

1	2	3	4	5	6	7
Romania	15.5	15.8	17.1	18.8	20.5	22.0
Spain	25	27.5	28.7	31.4	34.1	37.2
Sweden	6.2	6.8	7.2	7.6	8.1	8.3
United Kingdom	47.2	49.5	51.0	53.6	55.5	55.8

* in brackets the total population in Germany
Source: own elaboration based on UN Demographic Yearbooks 1948, 1955, 1962, 1971, 1979.

It can also be said that the increase in housing needs was not only the result of post-war population growth as such, but also of a new spatial distribution of the population. Migrations connected with a search for a job or a place to live contributed to the increase in importance of large cities.

Table 2.4. Population in cities with at least 100,000 inhabitants (millions) from the 1940s to the 1980s

Country	Year	Population (millions)	Year	Population (millions)	Year	Population (millions)	Year	Population (millions)
1	2	3	4	5	6	7	8	9
Austria	1951	2.3	1961	2.3	1971	2.3	1981	2.2
Belgium	1947	0.9	Na	Na	1970	1.3	1980	1.3
Bulgaria	1946	1.7	1956	0.9	1965	1.4	Na	Na
Czechoslo-vakia	1947	1.6	1961	2	1970	2.3	Na	Na
Denmark	1950	1.4	1960	1.5	1965	1.7	1970	1.8
Finland	1950	0.5	1960	0.7	Na	Na	Na	Na
France	1946	6.6	1954	7.2	1968	20.4	Na	Na
Federal Republic of Germany	1946	10.2	1950	12.9	1961	16.5	1970	24.0
German Democratic Republic	1946	2.3	1964	3.7	1971	3.7	1981	4.3
Greece	1951	0.9	1961	2.5				
Hungary	Na	Na	1960	2.2	1970	2.7	1980	3.1
Ireland	1951	0.5	1960	0.6	1966	0.8	1981	1.0
Italy	1951	9.7	Na	Na	1971	15.8	1981	15.9
The Nether-lands	1947	0.6	Na	Na	Na	Na	Na	Na

Table 2.4 (cont.)

1	2	3	4	5	6	7	8	9
Poland	1946	2.4	1960	6.1	Na	Na	1978	9.7
Portugal	1950	1.0	Na	Na	Na	Na	1981	1.1
Romania	1948	1.3	1956	2.1	1966	3.1	1977	5.0
Spain	1950	6.7	Na	Na	1970	12.4	1981	15.8
Sweden	1950	1.3	1960	1.7	1970	1.7	1980	1.8
United Kingdom	1951	22.7	1961	16.6	Na	Na	Na	Na

Source: own elaboration based on UN Demographic Yearbooks 1948, 1955, 1962, 1971; UN Compendium of Human Settlements Statistics 1983.

Unfortunately, also in this case, statistical data are fragmentary – see Table 2.4. However, their analysis allows us to note significant differences in the rate of population growth in cities with at least 100,000 inhabitants in France, Federal Republic of Germany, Italy, Poland and Spain.

2.3.2. Size and ownership structure of the housing stock

Regrettably, statistical data describing housing stock from the early post-war period are not complete, as censuses constituting their main source were carried out at different times and using different methodologies. However, one can notice some characteristic features of the housing situation at the time, primarily the growth dynamics of the housing stock in individual years – see Table 2.5. In countries where data from the 1950s are available, it can be seen that in those years an increase in the number of dwellings was moderate, probably due to economic difficulties, especially material (the deficit and high costs of building materials). It was not until the 1960s that an increase in the growth rate of the housing stock could be observed.

Table 2.5. The number of dwellings in European countries from the 1950s to 1980s

Country	**Year**	**No. of dwellings (millions)**	**Year**	**No. of dwellings (millions)**	**Year**	**No. of dwellings (millions)**	**Year**	**No. of dwellings (millions)**
1	2	3	4	5	6	7	8	9
Austria	1951	2.14	1961	2.25	1972	2.65	1981	2.69
Belgium	1947	2.81	1961	3.01	1970	3.22	Na	Na

1	2	3	4	5	6	7	8	9
Bulgaria	1956	1.73	1965	2.01	1975	2.33	1985	2.70
Czechoslovakia	1950	3.61	1961	3.82	1970	4.40	1980	4.90
Denmark	1960	1.48	1965	1.57	1970	1.80	1981	2.03
Finland	1950	0.99	1960	1.21	1970	1.46	1980	1.72
France	1962	14.14	1968	15.77	1973	18.12	1978	18.64
Federal Republic of Germany	1956	12.66	1968	19.64	1972	20.12	1978	23.06
German Democratic Republic	Na	Na	1967	5.95	1971	6.05	Na	Na
Greece	1951	1.7	1961	2.07	1971	3.08	Na	Na
Hungary	1960	2.72	1970	3.03	1973	3.34	1980	3.41
Ireland	1961	0.67	1966	0.68	1970	0.70	1986	0.96
Italy	1951	10.75	1961	13.03	1971	17.43	Na	Na
The Netherlands	1956	2.51	1960	2.82	1971	3.72	1977	4.50
Poland	Na	Na	1960	7.02	1970	8.29	1977	10.71
Portugal	1950	2.03	1960	2.2	1970	2.70	Na	Na
Romania	Na	Na	1966	5.24	Na	Na	1992	7.18
Spain	1950	6.29	1960	7.72	1970	10.65	1991	11.82
Sweden	1960	2.58	1965	2.77	1975	3.53	1980	3.49
United Kingdom	1961	14.64	1966	15.69	1971	16.45	1981	17.85

In the case of countries where there are no data from the 1970s and the early 1980s, later data was used.

Source: own elaboration based on UN Compendium of Housing Statistics 1971, 1975–77; UN Compendium of Human Settlements Statistics 1983, 1995; TENLAW.

An important issue was the share of households that were the owners of inhabited flats and homes, fragmentary data indicate huge diversity in this respect in individual countries. Interestingly, however, an extremely high level of ownership is characteristic of some socialist countries – see Table 2.6.

Table 2.6. Percentage of households living in their own dwellings from the 1960s to 1980s

Country	Year	Percentage of households living in their own dwellings (%)	Year	Percentage of households living in their own dwellings (%)
Austria	1970	47.7	1981	48.1
Belgium	1961	49.7	Na	Na
Bulgaria	1965	71.0	1985	72.5
Czechoslovakia	1961	50.4	Na	Na
Denmark	1965	44.4	Na	Na
Finland	1960	60.8	1989	71.2
France	1968	60.8	1968	54.4
Federal Republic of Germany	1961	29.4	1987	37.6
Hungary	1970	62.9	1990	74.0
Ireland	1961	59.8	1981	74.4
Italy	1961	45.8		
The Netherlands	1956	25.7	1989	44.0
Poland	Na	Na	1988	35.3
Portugal	1960	44.5	Na	Na
Romania	Na	Na	1992	75.4
Spain	Na	Na	1991	77.6
Sweden	1970	35.5	1990	40.4
United Kingdom	1961	43.0	Na	Na

Source: own elaboration based on UN Compendium of Housing Statistics 1971; UN Compendium of Human Settlements Statistics 1995.

A popular, albeit imperfect, indicator allowing for comparison of the housing situation in individual countries is the number of dwellings per 1000 inhabitants. On the basis of previously indicated fragmentary data, a conversion was made, which allowed for the determination of indicators at a certain time interval. This enables us to conduct an analysis of the scope and speed of changes in the housing situation of individual countries – see Table 2.7.

Table 2.7. The number of dwellings per 1000 inhabitants from the 1950s to 1970s

Country	Year	The number of dwellings per 1000 inhabitants	Year	The number of dwellings per 1000 inhabitants
Austria	1951	310	1972	353
Belgium	1947	330	1970	335
Bulgaria	1956	227	1975	268
Czechoslovakia	1950	293	1970	308
Denmark	1960	329	1970	367
Finland	1950	247	1970	317
France	1962	304	1973	344
Federal Republic of Germany	1956	249	1972	327
German Democratic Republic	1967	372	1971	356
Greece	1951	223	1971	354
Hungary	1960	273	1973	321
Ireland	1961	239	1970	235
Italy	1951	229	1971	325
The Netherlands	1956	235	1971	286
Poland	1960	236	1970	254
Portugal	1950	241	1970	318
Romania	1966	274	Na	Na
Spain	1950	225	1970	313
Sweden	1960	344	1975	430
United Kingdom	1951	274	1971	338

Source: own elaboration based on UN Demographic Yearbooks 1948, 1955, 1962, 1971; UN Compendium of Human Settlements Statistics 1983.

In the 1950s, the most difficult housing situation observed on the basis of the above-presented indicator was noted in Greece, Spain, Italy, and Bulgaria. Poland, the Netherlands and Ireland were not in a much better position. However, when examining the indicator for the 1970s, there is a huge difference in the growth rate of the housing stock – Greece, which improved its performance from 223 to

354 dwellings per 1000 inhabitants over 20 years, is the undisputed leader, and a much better situation was recorded in Italy and Spain. On the other hand, the lowest values were still observed in Ireland, Poland and Bulgaria.

2.4. Socio-economic conditions for the development of housing markets from the 1980s to 2017

The economic problems of the 1970s caused a reverse trend than in previous years – i.e. re-commodification of the housing stock [Forrest, Williams 1984]. Countries began to withdraw from direct participation in the provision of housing services (which also meant a reduction in public spending for housing purposes), ceding some of their rights to private entities, often non-profit, privatising social resources, supporting the demand side and not the supply side as previously [Dewilde, De Decker 2016]. Property ownership rights were also promoted through bonus privatisation for tenants, and private rental investments were supported by removing rent restrictions.

New factors, which in the long run triggered the current process of financialisation, emerged in the 1980s. Liberalisation of rules applicable in financial markets, development of global relations, including also mortgage lenders or securitisation, contributed to an increase in demand for mortgage loans, an increase in the number of owners, rising prices in housing markets and, consequently, price bubbles in housing markets of many countries. External factors of a demographic and cultural character, including changes in the labour market, were also important. The result of these impacts and changes is the growing level of inequality in access to housing services of an appropriate standard. This is evidenced by studies concerning the impact of commodification and financialisation on the availability of housing among low-income households. Between 1995 and 2012, in countries that have a higher level of commodification and financialisation, a deterioration in housing availability was observed both in relation to the moderately prosperous group and in the case of poor households [Dewilde, De Decker 2016].

2.4.1. Demographic determinants

In most EU countries, there was an increase in population in the analysed period of 1980–2017, although its pace varied – see Table 2.8. Countries losing residents are former socialist states such as: Bulgaria, Croatia, Estonia, Hungary, Latvia, Lithuania and Romania.

Table 2.8. Population changes in the years 1980–2017

Country	Population (millions)				
	1980	1990	2000	2010	2017
Austria	7.5	7.7	8.1	8.4	8.7
Belgium	9.8	10.0	10.5	10.9	11.4
Bulgaria	8.8	8.9	8.0	7.5	7.0
Croatia	Na	4.8	4.4	4.4	4.1
Czechoslovakia (since 1990 – the Czech Republic)	15.3	10.3	10.3	10.5	10.6
Denmark	5.1	5.1	5.3	5.5	5.7
Estonia	Na	1.6	1.4	1.3	1.3
Finland	4.8	5.0	5.2	5.5	5.5
France	53.7	56.7	59.0	61.2	64.9
Federal Republic of Germany (since 1990 as one country)	61.5	79.4	82.0	82.4	82.5
German Democratic Republic	16.7				
Greece	9.6	10.0	10.0	11.1	10.8
Hungary	10.7	10.3	10.0	10.0	9.8
Ireland	3.4	3.5	3.8	4.5	4.8
Italy	57.0	57.6	57.7	60.5	60.5
Latvia	Na	2.6	2.4	2.2	2.1
Lithuania	Na	3.7	3.7	3.3	3.1
The Netherlands	14.1	14.9	15.8	16.6	17.1
Poland	35.6	38.1	38.6	38.2	38.0
Portugal	9.9	9.9	10.0	10.6	10.3
Romania	22.2	23.2	22.4	21.4	19.6
Slovakia	Na	5.3	5.4	5.4	5.4
Slovenia	Na	2.0	2.0	2.0	2.0
Spain	37.4	38.9	39.5	46.0	46.5
Sweden	8.3	8.6	8.9	9.4	10.0
United Kingdom	55.9	57.5	59.5	62.2	65.8

Source: own elaboration based on UN Demographic Yearbooks 1983, 1994, 2000, 2010, 2017.

Taking into account the number of citizens as a specific indicator of housing needs, it can be pointed out that the need to provide a significant number of residential units concerned France, Great Britain and Spain in the period under consideration. It is noteworthy that other countries with a large population – Germany and Italy – did not experience such an increase in population.

2.4.2. Size and ownership structure of the housing stock

Population changes can be compared with the results of censuses in relation to the number of inhabited dwelling units. In principle, there is an increase in the number of inhabited flats and homes, while its pace is varied – see Table 2.9. Unfortunately, there is no possibility to refer to the number of inhabited dwellings in 2017 in relation to all countries,[7] therefore the total number of dwellings is presented.

Table 2.9. Changes in the number of dwellings in individual EU countries from the 1980s to 2017

Country	Year	No. of dwellings (millions)	Year	No. of dwellings (millions)	No. of dwellings in 2001 (millions)	No. of dwellings in 2011 (millions)	No. of dwellings in 2017* (millions)
1	2	3	4	5	6	7	8
Austria	1981	2.7	1997	3.2	3.3	3.6	3.9 (4.6)
Belgium	Na	Na	1991	3.7	4.0	4.6	(5.4)
Bulgaria	1985	2.7	1992	2.7	2.8	2.6	(3.9)
Croatia	Na	Na	1991	1.5	1.7	1.9	(2.2)
Czechoslovakia (since 1990 – the Czech Republic)	Na	Na	1991	3.7	3.8	4.1	(4.7)
Denmark	Na	Na	1991	2.1	2.4	2.5	2.6 (2.8)
Estonia	Na	Na		Na	0.5	0.5	0.6 (0.7)
Finland	1989	2.0	1998	2.2	2.3	2.5	2.7 (3.0)
France	Na	Na	1990	21.5	23.8	27.9	28.7 (35.0)

7 The reason is the lack of census data. The authors contacted the national statistical offices to obtain the data but received answers in most cases that there is no such data.

1	2	3	4	5	6	7	8
Federal Republic of Germany (since 1990 as one country)	1987	25.9	1998	34.5	Na	36.9	(40.5)
German Democratic Republic	Na	Na					
Greece	Na	Na	Na	Na	3.5	4.1	(6.5)
Hungary	Na	Na	1990	3.7	3.7	3.9	(4.4)
Ireland	1986	0.9	Na	Na	1.3	1.6	1.7 (2.0)
Italy	Na	Na	1991	19.7	21.6	24.1	25.7 (35.8)
Latvia	Na	Na	1991	0.9	0.8	0.8	(1.0)
Lithuania	Na	Na	1998	1.3	1.2	1.2	(1.4)
The Netherlands	1989	5.8	1998	6.7	6.5	6.9	(7.7)
Poland	1988	10.7	1995	11.0	11.6	12.6	(14.4)
Portugal	Na	Na	1991	3.0	3.5	3.9	(5.9)
Romania	Na	Na	1992	7.2	7.2	7.3	(8.8)
Slovakia	Na	Na	1991	1.6	1.6	1.7	(1.9)
Slovenia	Na	Na			0.6	0.7	0.7 (0.9)
Spain	Na	Na	1991	11.8	14.2	18.0	(25.2)
Sweden	Na	Na	1990	3.8	4.0	4.0	(4.8)
United Kingdom	Na	Na	1996	20.4	24.4	26.3	(28.0)

* Data for 2017 concern inhabited dwellings and the total number of dwellings, the latter data are provided in brackets.

Source: own elaboration based on UN Compendium of Human Settlements Statistics 1995, 2001, 2011; Eurostat Census time series, Croatian Bureau of Statistics; data for 2017 come from the publication of Pittini et al. 2017, ECB Structural Housing Indicators Statistics, verification carried out with the use of national statistical offices data.

The leaders in creating a new housing stock in the period under review are Ireland, Portugal, Spain, Croatia, and the United Kingdom. The significant difference between the size of the stock in most Western European countries and some post-socialist countries is visible.

The indicator which allows for the assessment of changes and their dynamics, i.e. the number of dwellings per 1000 inhabitants, illustrates differences between the bloc of capitalist and post-socialist countries – see Table 2.10.

Table 2.10. The number of dwellings per 1000 inhabitants in selected EU countries from the 1990s to 2017

Country	Year	Index	2001	2011	2017*
1	2	3	4	5	6
Austria	1997	400	407	429	547
Belgium	1991	377	388	422	474
Bulgaria	1992	303	354	356	551
Croatia	1991	312	386	432	524
Czechoslovakia (since 1990 – the Czech Republic)	1991	359	369	390	454
Denmark	1991	411	444	446	490
Estonia	Na	Na	384	384	385
Finland	1989	400	442	463	545
France	1990	379	402	441	539
Federal Republic of Germany (since 1990 as one country)	1987	421	Na	451	490
German Democratic Republic	Na				
Greece	Na	Na	350	362	601
Hungary	1990	359	363	391	449
Ireland	1986	257	342	355	416
Italy	1991	342	372	397	551
Latvia	1991	360	348	400	476
Lithuania	1998	351	343	375	551
Netherlands	1989	386	406	413	476
Poland	1988	282	300	330	379
Portugal	1991	303	340	371	573
Romania	1992	313	321	341	449
Slovakia	1991	302	296	315	352

1	2	3	4	5	6
Slovenia	Na	Na	300	350	450
Spain	1991	303	352	390	542
Sweden	1990	442	Na	423	480
United Kingdom	1996	349	408	421	425

* the indicator given for 2017 concerns the total number of dwellings
Source: own elaboration based on UN Compendium of Human Settlements Statistics 1995, 2001, 2011; Eurostat Census time series, Croatian Bureau of Statistics; data for 2017 come from the publication of Pittini et al. 2017, ECB Structural Housing Indicators Statistics, verification carried out with the use of national statistical offices data.

The increase in the number of dwellings per 1000 inhabitants was most evident in Greece and Portugal, but holiday homes undoubtedly play an important role there. Differences among post-socialist countries are also noteworthy. Clearly there is a significant difference between the size of the housing stock in most Western European countries and some post-socialist countries. In the latter group, the quantitative shortage should not occur strongly in the Czech Republic, Latvia, Lithuania, Slovenia, Bulgaria and Croatia. There are, however, specific determinants that disrupt the drawing of such a conclusion, primarily concerning the quality of the resource and its allocation for holiday homes. Population losses which result in an increase in the total number of dwellings per 1000 inhabitants are also of certain significance.

Chapter 3

The evolution of housing markets in selected EU countries[1]

3.1. The evolution of housing markets in selected EU countries from the 1950s to the 1980s

Statistical data are a reflection of the efficiency of the housing policy pursued by individual countries. Countries are the main constructor of the institutional order and the entity responsible for creating institutional filters that mitigate the effects of so-called global shocks as well as other threats resulting from the international environment [Wilkin 2017]. The priority system adopted by politicians is decisive in the implementation of these tasks, and the policy objectives are subordinated to its values. The institutional matrix of society is the result of formal (legal) and informal norms adopted by a given society.

As part of its housing policy, **Austria**[2] focused on the reconstruction of resources destroyed during military operations, and efforts were made to support primarily low-income households. Due to economic problems in the 1950s, not much

1 This chapter was based on publications resulting from the TenLaw project, TENLAW: Tenancy Law and Housing Policy in Multi-level Europe: Austria R. Hofmann, Belgium M. Haffner, H. Bounjouh; Bulgaria B. Zahariev, D. Giteva, I. Yordanov; Cratia A. Jakopič, M. Žnidarec; Czech Republic P. Podrazil, R. Jadamus, P. Petr; Denmark J. Juul-Sandberg; P. Orji, P. Sparkes; Estonia A. Hussar; Finland T. Ralli; France J. Hoekstra, F. Cornette; Germany J. Cornelius, J. Rzeznik; Greece T. Konistis; Hungary J. Hegedüs, V. Horváth, N. Teller, N. Tosics; Ireland M. Jordan; Italy R. Bianchi; Latvia J. Kolomijceva; Lithuania A. Mikelėnaitė; the Netherlands M. Haffner, M. van der Veen, H. Bounjouh; Poland G. Panek; Portugal D. Correia, N. Santos, M. Olinda Garcia; Romania I. Bejan, F. Botonogu, I. Armasu, Scotland M. Jordan; Slovakia J. Štefanko, M. Filo, Z. Jurcova; Slovenia T. Pertovic; Spain E. Molina Roig; Sweden O. Bååth. https://cordis.europa.eu/project/rcn/102183/results/en (access date: 15.05.2018).

2 Population in 1947 6.9 million, in 1979, 7.5 million; the number of flats in 1951 was 2.14 million, in 1981, 2.69 million.

was built – about 112,000 dwelling units in the years 1951–61, a real construction boom took place in the 1960s, then approx. 416,000 units were built. The state supported housing producers through a subsidy system, and target beneficiaries were low-paid people who obtained rights to social housing at prices lower than market prices.

The recognition of the ownership of a dwelling as the adopted cultural model was characteristic of **Belgium**.[3] Even before World War II, solutions were introduced that would enable the purchase of dwellings for ownership, also by the less affluent. After the war, despite experiencing significant housing shortages by the country's inhabitants, not much was built. This stemmed, on the one hand, from an increase in construction costs, inadequate to the size of state aid, and on the other hand, from freezing rental rates, which made renting dwellings cheap and the construction of dwellings for rent an uncompetitive investment. Additional difficulties were due to the inability to develop comprehensive legislative solutions (political dispute).

Denmark[4] did not feel housing scarcity before World War II, but the outbreak of the war and the halting of construction activity caused a housing shortage, and as a result, legal regulations protecting tenants were introduced. Denmark did not suffer much war damage of the housing stock, however, in the 1940s a large shortage of dwellings was felt due to a lack of new investments, the low standard of existing resources, population growth and the wave of migration to cities in certain locations. Investors were not interested in investing in dwellings for rent due to the fact that rents were frozen. In this situation, politicians agreed that a serious intervention in the housing market consisting in supporting the construction of low-cost housing was necessary. Financing facilitation in the form of loans for property owners was introduced. Construction activity started growing along with the improvement of the economic situation, mainly in the segment of single-family homes. The new private rental stock became exempted from rent restrictions, hence rates increased quickly. In the 1960s, condominiums – the equivalent of housing associations – and the possibility of becoming the owner of a dwelling in a multi-family building were introduced, which was part of the liberalisation of the housing market. In addition, housing co-operatives increased the volume of their business activities, as a result of all those activities, the number of dwellings put into operation increased. In the 1970s, the pre-emptive right for tenants was introduced.

3 Population in 1947 8.4 million, in 1979, 9.8 million; the number of flats in 1947 was 2.81 million, in 1970, 3.22 million.

4 Population in 1947 4.1 million, in 1979, 5.1 million; number of flats in 1960 was 1.48 million, in 1981, 2.03 million.

In socialist countries – **Bulgaria**, **Czechoslovakia**, **German Democratic Republic**, **Poland**, and **Romania**[5] – the housing policy was treated in a similar way: as an addition to the most important defence and economic policies. For ideological reasons, certain types of industrial activities were promoted (mines, steel mills, power plants, large industrial plants), which required huge capital expenditures. The housing construction was lacking in terms of labour force and financial resources, although the propaganda aspect of housing construction as a way of meeting the needs of socialist society was readily used. Housing needs in individual countries varied due to the fact that war damage affected Poland and East Germany the most, while other socialist countries did not suffer so much. The housing sector was dominated by a centrally planned economy, thus construction, distribution and principles of resource maintenance were dependent on central decisions and long-term economic plans. The free market functioned to a very limited degree in some countries. Even if private owners kept the right of ownership of private homes, they were not able to decide on the use of their property. After the first period of strong restrictions and pressure on nationalisation, there was a reduction in state interference, often continued in the form of restricting private sales – which as a result were carried out informally. Building activity in the housing sphere in the 1950s and 1960s was far too small in relation to demographic and social needs – see Table 2.3 and 2.5.

In the post-war period, **Finland**[6] suffered from a severe housing shortage, and a subsidy system for the supply side (also property owners) was established in response. A system of special housing loans was also launched. In the 1960s, a great migration took place to cities where, in view of the huge increase in needs, housing for workers began to be built and restrictions for private owners of the rented resource were introduced. As of 1968, the income criterion was applied when granting the right to social housing and supporting home ownership, rent rates restrictions were also in place. In the 1970s many dwellings were built, particularly in the suburbs. Financial resources were obtained from state-supported loans, there was no commercial mortgage lending, and the financial market was strictly regulated. A subsequent change of determinants was caused by deregulation of the financial market and withdrawal of the state from the existing forms of support.

Similarly to many other countries, after the war, **France**[7] suffered from a considerable housing deficit. In response to social needs, subsidies and low-interest loans for construction were introduced, which resulted in a construction boom

5 At the time, Lithuania, Latvia and Estonia were parts of the USSR, Croatia was part of Yugoslavia.

6 Population in 1947 3.9 million, in 1979, 4.7 million; number of flats in 1950 was 0.99 million, in 1980, 1.72 million.

7 Population in 1947 41.0 million, in 1979, 53.5 million; the number of flats in 1962 was 14.14 million, in 1978, 18.64 million.

in the 1960s and 1970s. The development of the social housing sector was also stimulated, but the dwellings were of low quality. Efforts were also made to support ownership by allowing for cheap financing for developers building for sale, which in turn was to result in lower prices. Demand was stimulated by low interest mortgage loans and a bonus system in their repayments. Since the mid-1960s, the size of state aid for the housing sector has been reduced, leaving, however, the main support instruments.

Germany[8] is a unique example of the development of the housing sector. The division of the state in 1949 brought to life two separate countries that sought to compete with each other in all possible fields. The German territory suffered severe destruction, in addition, the housing shortage was strengthened by the influx of people from areas that due to newly established borders ceased to belong to Germany. In Federal Republic of Germany, a system of housing assistance based on social housing was created. However, unlike in other countries, activities of private entities were used as part of the adopted solutions. These entities became the providers of the social housing stock that was characterised by high quality, and the whole society was meant to be its users, not just the poorest individuals. The market was limited in such a way that the state granted rights to the social resource, decided on the amount of rent or its temporary freezing (which after some time was lifted). The scale of construction can be evidenced by the fact that 220,000 new dwellings were put into operation in 1949, 460,000 in 1952 and 620,000 in 1964. In total, in the years 1949–65, approx. 9 million dwellings were constructed, of which about 51% constituted social housing. The tax system and the unfreezing of rents supported the private sector investing in dwellings for rent and the acquisition of ownership.

Greece[9] was characterised by a lack of the official state housing policy, it was believed that meeting housing needs was a private, family matter. At the same time, in the constitution, there was a reference to the necessity of state assistance for those in need of support. The housing problem was serious due to the waves of migration to cities, resulting in areas occupied by the homeless. The state was not able to control construction activity, there was widespread illegal construction and a lack of spatial planning. The state through certain organisations, including trade unions, tried to offer support to workers or widows without the source of livelihood. Loans were granted and assistance in paying rents was provided. A significant increase in the number of dwellings in the years 1951–71 indicates that construction activity, despite the lack of official housing policy, but with institutional support (a system of cheap loans) was developing very well.

8 Population in 1947 in Federal Republic of Germany 45.3 million, in 1979, 61.3 million; the number of flats in 1956 was 12.66 million, in 1978, 23.06 million.

9 Population in 1947, 7.5 million, in 1979, 9.4 million; number of flats in 1951 was 1.7 million, in 1970, 3.01 million.

Ireland[10] achieved statehood in 1948, it was a country at a low level of economic development, very heavily dependent on the economy of Great Britain. The housing policy became particularly important for the local government because of the imposition of the responsibility for the housing sphere and the scope of needed activities. In addition to support for construction activity (subsidies were also for local government construction), efforts to promote ownership were made. In addition, slums were demolished and attempts were made to revitalise problem areas. The private rental sector was not supported.

Italy[11] was one of the countries that suffered directly from effects of war, and it was necessary to rebuild its housing stock. In addition, migrations to cities contributed to the fact that the problem of unmet housing needs became very serious. Housing issues were given very high political significance, and as a result, the emphasis was placed on building social housing that was rented or sold to the needy. Facilitations for social housing were already present at the stage of spatial planning.

In **the Netherlands**,[12] it was already recognised in the pre-war period that a dwelling for rent was a good form of old age security. The introduction of the pension system changed this approach, and the additional discouraging factor resulted from the regulation of rents by the state. In 1947, 60% of the housing stock was used as a privately-owned rental resource, 12% constituted social housing, and flats and homes inhabited by their owners amounted to 28%. Some rentiers sold housing units to public entities as part of revitalisation processes. Investors in the rental segment were not only natural persons but also institutional investors, such as insurance companies. Incentives resulted from the possibility of obtaining assistance in the construction process. The share of households inhabiting their own resources gradually increased along with the improvement of the material situation of citizens.

Portugal[13] is an example of a state that experienced similar socio-economic processes to Western European countries but with a significant shift in time. The period of migration to cities took place in the 1960s and in the first half of the 1970s. Problems related to a lack of compliance with construction regulations were a typical occurrence, and illegal construction of homes was common. Attempts were made to solve the shortage of dwellings by providing social housing, but there was no widespread acceptance for this solution. The poor state of the

10 Population in 1947, 3.0 million, in 1979, 3.3 million; number of flats in 1961 was 0.67 million, in 1970, 0.7 million.

11 Population in 1947, 45.3 million, in 1979, 56.9 million; the number of flats in 1951 was 10.75 million, in 1971, 17.43 million.

12 Population in 1947, 9.6 million, in 1979, 14.0 million; the number of flats in 1956 was 2.51 million, in 1977, 4.5 million.

13 Population in 1947 8.3 million, in 1979, 9.9 million; number of flats in 1950 was 2.03 million, in 1970, 2.7 million.

housing stock resulted from the long-term freeze of rent increases, which in the case of encountering difficulty in removing a tenant resulted in the unprofitability of investing in privately-owned dwellings for rent. This resulted in the necessity for large-scale revitalisation activities, in particular in Lisbon and Porto, where many old lease agreements, which were not subject to regulation amendments (from 1966 the possibility of rent increases every 5 years was introduced) were in force.

In **Spain**,[14] a considerable housing shortage occurred after the civil war, in the 1950s renting was more common than home ownership (51.4% to 46.9%). However, this situation changed in the next period because the aim of the state policy focused on expanding the group of owners. The offer of private dwellings for rent became reduced due to the strong protection of tenants and the high risk that the dwelling user would be in arrears, which discouraged this type of investment. After 1959, political openness resulted in economic growth, housing became an important element of the state policy, and tax breaks in the form of tax deductions for buyers were introduced. There were also support instruments for social housing. On the other hand, the private rental market was shrinking because the owners did not receive returns that were competitive to other investments, so they often resold their dwellings to their tenants. The situation was complicated by the fact that both old and new regulations regarding the rules for the lease of residential premises were in force. With time, building for the purpose of selling ownership rights became the main segment of the supply side.

Sweden[15] has a similar history to many other countries with regard to housing. The industrial revolution and migrations connected with it caused demand for housing in cities, renting dwellings was common and no particular protection of tenants was anticipated. Since 1956, rent limits were in force, and in 1969 new rules were introduced which linked rent rates in the private housing stock with rents in the social housing stock. Social housing developed intensively after World War II, housing cooperatives that provided a resource for less affluent citizens were of great importance. The state supported the acquisition of ownership by households with smaller financial resources, there was a system of cheap loans for the supply side, municipalities supported non-profit entities providing housing. This caused a very large increase in the housing stock, including social housing, since the late 1960s one could even speak of a surplus of dwellings. Available statistical data indicate that between 1960 and 1975 there was a significant increase in the number of dwellings per 1000 inhabitants: from 344 to 430.

14 Population in 1947, 27.5 million, in 1979, 37.2 million; the number of flats in 1950 was 6.29 million, in 1970, 10.64 million.

15 Population in 1947, 6.8 million, in 1979, 8.3 million; the number of flats in 1960 was 2.58 million, in 1980, 3.49 million.

After World War II, **Great Britain**[16] was in a very difficult economic situation due to the loss of the status of the colonial power and the economic crisis as well as the need to rebuild after the war destruction. As part of the housing policy, it was considered that assistance for people who could not satisfy their housing needs due to financial reasons was essential. Activities undertaken included, among others, blocking the possibility of increasing rent rates in private dwellings for rent and imposing on the local government the obligation to provide social housing. In 1951, the total number of flats and homes was estimated at 13.7 million, of which the predominant amount was the private housing stock for rent – 7.1 million, and the municipal housing stock had the smallest share – 2.5 million. Consistent discouragement of investment in private housing led to a change in this structure – in 1971, out of 18.8 million flats and homes only 3.6 million constituted the privately-owned housing stock for rent, the largest number of premises were inhabited by their owners – 9.4 million, and 5.7 million dwelling units were part of the municipal stock.

3.2. The evolution of housing markets in selected EU countries from the 1980s to 2017

3.2.1. Distinctiveness of post-socialist states

Housing systems of socialist countries have been described as "property without markets" [Zavisca 2002]. The consequence of their distinctiveness resulting from post-war political and economic determinants is the creation of separate *path dependencies* not only deviating from the patterns existing in Western European countries but also differing from one another. The basic division of socialist housing systems refers to the adopted constitutional principles and allows us to distinguish two groups with three models within them, namely the Soviet model (the USSR and East Germany, i.e. the German Democratic Republic) and the classical model (Albania, Bulgaria, Romania) in a group of states with a classical socialist system as well as the reformist model (Yugoslavia, Hungary, Poland, Czechoslovakia) in a group of states with a system of reformed socialism [Soaita, Dewilde 2017, p. 8].

The transformation of housing systems in these countries reflects the initial situation, fundamental reforms of the 1990s, as well as their economic development and demographic changes. Ownership transformations in the form of privatisation and reprivatisation were the cornerstone of further development.

16 Population in 1947 49.5 million, in 1979, 55.8 million; the number of flats in 1961 was 14.64 million, in 1981, 17.85 million.

Reprivatisation, apart from Poland, was of a statutory character – new legal acts provided for the possibility and scope of recovering property or compensation for former owners and their heirs. There were various solutions in this area – from restitution in kind to previous owners, through payment of compensation in cash, to disbursements in the form of reprivatisation vouchers for which state assets could be purchased. The process of privatising the public housing stock was carried out in parallel, and different solutions were used in the process, exiting differences primarily resulting from the decision-making level – whether decisions were taken by national level bodies and the same rules applied universally or decisions were made individually by municipalities that were allocated the housing stock. Ownership transformations resulted in record-breaking levels of flats and houses on a European scale obtained thanks to the desire to be a home owner and discounts in the cost of buying dwellings. Acquisition of ownership through privatisation did not involve the necessity of taking out a mortgage or it was incurred in a disproportionately low amount in relation to the market value of the property obtained. As a result, the ownership structure did not correspond to the level of household wealth, which, combined with a significant degree of technical wear of the housing stock present in some countries, made it difficult to maintain and manage it.

In most post-socialist countries, the social housing stock is of marginal importance because of its very small size. This does not correspond to housing needs reported by households [Habitat for Humanity Report 2018], the private rental stock is underestimated due to tax reasons, as the fact that the dwelling is rented is often kept secret. In-depth analyses indicate that despite many similar problems affecting housing in these countries, they had different path dependencies in their development, referred to as "parallel paths" [Soaita, Dewilde 2017].

Housing policies of post-socialist countries are closely related to political changes that occurred in them. **Bulgaria**[17] is one of the poorest EU countries, in recent years it lost citizens who migrate in search of better living conditions, and the number of births is low, which resulted in a population decline of almost 2 million comparing the years 1990 and 2017. The change in the form of a rapid increase in private ownership at the expense of public resources was characteristic of the ownership structure of the housing stock. It resulted from privatisation and reprivatisation processes. Currently, approx. 87% of the stock is inhabited by private owners, and only 2.5% by municipal tenants. The low level of income, the rapid increase in the cost of living combined with the poor quality of the old and worn-out housing stock (energy-inefficient) made the real estate a burden for many entities, not an entitlement. Many people are often unable to cover the costs of renovation work resulting from a very significant degree of technical wear of buildings.

17 Population in 1947, 7 million, in 1979, 9 million, in 2010, 7.5 million; number of flats in 1956 was 1.73 million, in 1975, 2.33 million, in 2011, 2.6 million.

Bulgaria is at the forefront of countries where the housing stock is characterised by high levels of severe housing deprivation and overcrowding.

Until 2008, a rapid increase in residential property prices was observed, however a kind of bubble burst at the end of 2008. The crisis also affected the construction and financial sectors, and banks became much more cautious in providing mortgage loans. The lack of economic and political stability is reflected, among others, in the implemented housing policy, the problem of the lack of available social housing is serious considering the increase in the number of poor households. A separate issue is illegal construction, in particular carried out by the Roma. In 2017, a new housing strategy was introduced, the aim of which is a balanced housing policy expressed by helping the poorest, including covering heating costs and the costs of necessary repairs.

Croatia,[18] apart from the problems resulting from the systemic transformation, also felt the consequences of war, i.e. it was necessary to rebuild the destroyed stock. As in the case of Bulgaria, the population of the state decreased. Analysing the housing situation, one should mention two basic processes that shaped it, namely privatisation and reprivatisation. They caused a change in the ownership structure, in 1991, the social housing stock accounted for about 25% of the total housing stock, currently over 90% of the stock is inhabited by private owners. The remnants of socialist housing law were visible for many years, despite the introduction of market economy principles. In 1996, new rules were introduced, but it was impossible to completely cut off from the past. The Constitution indicates that the obligations in terms of meeting the housing needs of citizens rest with the local government, the state was released from such obligations. However, municipalities did not have the necessary knowledge or resources to manage the housing stock, so they attempted to dispose of it by using distributive privatisation (in general, 10–15% of the value of the purchased dwelling was paid). As a rule, the money obtained from privatisation should be used to cover the costs of building and renovating the social housing stock, but in general it did not happen. Production plants also disposed of their housing resources. Currently, a serious problem is the poor technical condition of buildings and the lack of funds for repairs which should be carried out at the expense of the owners or housing associations. The private rental market is partially hidden, and the rental market of social housing is very small. There is no national housing strategy, the expression of the housing policy is the introduction of programmes supporting ownership, the financing of construction or purchase of dwellings. Also, social housing for the poorest is supported. Specific to Croatia is the difference in prices of real estate located in attractive locations on the coast and in the interior of the country.

18 Population in 1990, 4.8 million, in 2010 4.4 million; number of flats in 1991 was 1.5 million, in 2011, 1.9 million.

The Czech Republic,[19] still being part of Czechoslovakia, carried out reprivatisation at the beginning of the transformation period, and by 1993 most of the proceedings were already completed. In 1994, new rules were introduced relating to residential real estate and housing associations, and privatisation processes as well as legal and organisational transformations took place. The Czech housing situation is much better than in most post-socialist countries both in terms of quantity and quality of the housing stock. The number of owners-users is high, but it does not exceed 80%, it is estimated that there is 6–7% of dwellings left in the public stock [Lux 2017]. The crisis of 2008 caused a significant reduction in construction activity, however, an increase in demand in the following years and an increase in prices in large cities resulted in an increase in supply. There is a lack of affordable housing for households in a difficult financial situation. The basic objectives of the housing policy are determined at the national and ministerial level, the need to increase the availability of housing for households and the obligation to support citizens with unmet housing needs are indicated, which means the need to increase the size of the social housing stock. The basis for the activities carried out is the housing strategy 2020, however, there is no consensus on detailed regulations and political disputes regarding social housing continue. A special state housing fund was created, dealing with financing construction for rent as well as renovation of large panel blocks of flats and technical infrastructure in particular. Young people can benefit from support in the purchase of their first home.

Estonia[20] did not exist as a separate state after World War II until 1991, the challenges that the country faced concerned the rebuilding of the foundations of statehood. Focusing on the real estate market, it should be emphasised that privatisation, reprivatisation and liberalisation of trading in property rights have been carried out. In the socialist period, private property existed, but state-owned dwellings dominated. They were popular because they were cheap (about 20% of actual maintenance costs were paid), tenants held a strong position, and there was de facto the possibility of inheriting or swapping the dwelling. In 1989, approx. 21% of the population lived in private flats and houses, and approx. 61% in the state-owned stock. The political transformation very quickly changed these values – in 2000, only 4% of the population lived in the social housing stock, currently approx. 1.7%. It was the result of reprivatisation and privatisation. The priority of reprivatisation was assumed, hence it was possible to buy dwellings leased from the public housing stock only if there was no entity entitled to return the property to or if it was not wanted by that entity. In general, reprivatisation assumed a restitution in kind. In order to improve the situation of tenants in reprivatised multi-store

19 Population in 1990, 10.3 million, in 2010, 10.5 million; number of flats in 1991 was 3.7 million, in 2011, 4.1 million.

20 Population in 1990, 1.6 million, in 2010, 1.3 million; number of flats in 1991 was 0.5 million, in 2011, 0.5 million.

buildings, the lease agreements were continued, initially for 3 years, then that period was extended by 5 years, and then by another 5 years. Privatisation was carried out in the form of vouchers for which the ownership of the leased premises could be purchased, this rule was in force until 1st December, 1994. From the beginning of 1995, municipalities were able to freely sell their housing stock following market-based rules. After 2000, the private rental market began to develop, but for tax reasons it functioned outside the official market.

In Estonia, there is no statistically significant problem of the lack of housing, however, in the real distribution of demand and supply, vacant dwellings in rural areas and shortages in two largest cities are observed. Moreover, one should remember about strong emigration and declining population, as well as about the fact that new housing construction is small, while buildings created in the socialist period were often not renovated for decades and are currently very degraded. The high number of dwellings in relation to the number of inhabitants does not mean that the housing problem does not exist. The state supports ownership through tax instruments, after 2015 public support was introduced for renovation activities. The problem is the maladjustment of the size of dwellings to the size of households, as the latter are getting smaller, housing problems strongly affect young people, in particular in the two largest cities.

Latvia,[21] similarly to Estonia and Lithuania, was not an independent state from the time its territory became occupied by the USSR until the political transformation. De-nationalisation, reprivatisation and privatisation processes were necessary to implement new socio-economic principles. In the socialist period, private property existed, but with numerous restrictions, the renting of the public housing stock was the basic form of meeting housing needs. The costs of rent were low because the state took over a significant part of the maintenance of the resource. In the socialist period, the main part of the housing stock was built. The new constitutional rules and regulations introduced since 1990 concerned, among others, protection of property rights, rules of returning illegally taken property, and lease rules. The Constitutional Court took the position that Latvia as a state was not responsible for actions taken on its territory by the USSR, i.e. primarily nationalisation and expropriations.

As a fundamental element of the reform, reprivatisation was carried out, which had a separate regulation in relation to rural and urban areas. The real estate that was previously taken over on the basis of specific provisions was returned if the entitled entities submitted restitution applications. Changes caused by reprivatisation affected to the largest extent tenants of multi-dwelling buildings being returned. In order to prevent drastic changes in the terms of lease, the maximum amount of rent was set at the government level, it was possible to terminate the contract

21 Population in 1990, 2.6 million, in 2010, 2.2 million; number of flats in 1991 was 0.9 million, in 2011, 0.8 million.

primarily if the owner wanted to live in given premises. In 2007, the Constitutional Court found that rent limits violated basic constitutional rights.

A specific feature of legal regulations in Latvia is the possibility of separating the ownership of the land and the building, both of which may belong to private persons who are not co-owners of the property. It caused many problems, including disputes about the amount of rent for using land and difficulties in completing reprivatisation and privatisation processes. The privatisation carried out was of a voucher nature, citizens received vouchers for which they could acquire ownership of real estate, including rented dwellings. As a result of these activities, Latvia has a very high level of ownership, officially the private rental market is very small, unofficially it operates in the grey market due to tax reasons (tax avoidance by owners renting out flats). The social stock is provided by municipalities, as they have the duty to support citizens who are unable to satisfy their housing needs on their own. In spite of high official indicators of the number of dwellings per 1000 inhabitants, the problem of the lack of affordable housing is observed, and young people in cities constitute the most affected group. The social housing stock constitutes less than 1% of the total housing stock. State assistance is directed to owners and potential owners, it has the form of tax breaks for mortgage borrowers renovating their own dwellings. Municipalities may apply for co-financing when building social housing. The problems also concern the quality of the resource which is not repaired and therefore is characterised by a high degree of technical wear and non-compliance with current standards of living.

Similarly to the countries described earlier, **Lithuania**[22] had to face the creation of institutions of an independent state in the early 1990s. The basic issue was associated with ownership relations, private property was possible in the socialist period, but with numerous restrictions (e.g. a house of up to 130 sq m was eligible to be a private property). In 1991, legal acts were issued specifying the rules for conducting privatisation and reprivatisation, and attempts were made to carry out those processes quickly, as they were necessary to create a free market economy system. Privatisation was completed in most part by 1993, vouchers received by citizens used, among others, to pay for purchased dwellings and other types of real estate were its tool.

Reprivatisation turned out to be a more complicated process, it became necessary to issue complementary legal regulations in 1997. Some properties were given back in kind, and if it was not possible, compensation was paid or a replacement property was offered. Tenants of the recovered tenement houses could count on granting them housing in municipal resources or they could obtain building plots.

22 Population in 1990, 3.7 million, in 2010, 3.3 million; number of flats in 1991 was 1.3 million, in 2011, 1.2 million.

Social housing is for the most needy, constituting approx. 3% of the housing stock, rents are regulated. In official statistics, the size of the private rental market is small, this is due to the grey market which was created to avoid paying taxes.

There is large spatial diversity in terms of demand, supply and prices. University cities and health resorts are enjoying increased demand. Until 2007 an investment and price boom was recorded, then due to the crisis, prices dropped sharply, and the ensuing stagnation lasted several years, but in recent years a recovery was observed.

The principles of the housing policy and government documents currently do not favour ownership but indicate the importance of the rental sector, in particular with regard to satisfying the housing needs of young people, and the need to activate the construction sector. The actions of the state were and are directed at supporting specific groups of citizens in acquiring property, this is carried out, among others, through assistance in paying back the mortgage loan offered to families with the income up to a certain limit as well as the possibility of tax deductions for repayment of interest on the housing loan under certain conditions. The problem is a lack of affordable housing, in particular for less affluent families.

Romania[23] is the country with the highest level of housing ownership in the EU, it is also one of the poorest countries in the Community. This indicates serious irregularities in the system of meeting housing needs. In the socialist period, there was private ownership of dwellings mainly in rural areas. In cities, mostly large panel blocks of flats were built, the largest number of new housing units were put into operation in the 1970s and 1980s on a lease basis. Privatisation and reprivatisation were necessary to create the foundations of a new socio-economic system. Privatisation allowed public entities to dispose of burdensome costs and problems, initially it was on a national scale (10–30% of the administratively set price was paid), in later years municipalities made decisions concerning the principles of privatisation of municipal property. As part of reprivatisation, restitution was made in kind, including tenements with tenants, or compensation was paid. If a house was returned, its new owner was obliged to maintain the lease terms for the next 5 years. Reprivatisation caused many problems, and in 2012 it became necessary to issue new legal regulations on compensation.

In the housing sphere, there was a legislative lag. The housing situation of citizens is very difficult. Officially, there is almost no private rental sector – for tax reasons, owners do not admit to renting out dwellings. The social housing sector is very small, as municipalities are responsible for it, but due to a lack of funds, they are not able to meet the existing housing needs. This has a negative impact on the mobility of people, rents in the housing stock are at such a high level that the acquisition of property is economically the only way out. The housing situation of

23 Population in 1990, 23.2 million, in 2010, 21.4 million; the number of flats in 1992 was 7.2 million, in 2011, 7.3 million.

young families, persons migrating to cities and poor people is particularly difficult. Indirect evidence of this fact can be found in the trend of moving from cities to rural areas, visible in statistics, where it is easier to find cheaper accommodation. Moreover, many people emigrate abroad. The technical condition of the existing housing stock is bad, and the largest overpopulation of dwellings in the EU is recorded. Existing housing associations are struggling with the need to find significant funds for essential repairs.

The housing policy is carried out in an ad hoc manner, at the national level, it is divided between several bodies, municipalities deal with it locally. Introduced instruments do not produce the expected effects without adequate financial support. A special agency supporting the construction of housing for rent has been in operation since 1999, but the programme aimed at helping young people has been scaled down for budgetary reasons. In the sphere of financing, entities similar to German savings and construction banks have been introduced. The state provides a guarantee for banks granting mortgage loans under certain conditions.

In 2007, the possibility of buying property in the newly built rental stock was introduced, which indicates a lack of a strategy for operating in the social housing sector. The introduction of comprehensive anti-poverty programmes is positive, as they also concern the housing sphere, and revitalisation activities are being carried out.

Residential construction develops in specific locations, primarily around the capital, where prices also rise strongly. Income inequalities between the city and the country are significant, and the situation of Roma families is particularly difficult.

Slovakia[24] became an independent state on 1st January, 1993 by separating itself from Czechoslovakia. This means that some of the new legal regulations enacted in the early 1990s were common to the Czech Republic and Slovakia, among others, equal protection of property rights was introduced for all entities, forms of ownership were regulated, and principles of reprivatisation were defined. Over time, changes have been made to existing regulations to adapt them to new needs and situations.

During the socialist period, Slovakia had some autonomy, especially after the Prague Spring of 1968. Private ownership of dwellings in large cities was generally not allowed, dwellings were used on the basis of special rights similar to lease-based rights with a very high degree of tenant protection, rents were low and regulated from the top, and they did not cover the costs of maintaining the housing stock. The owner of the housing stock was primarily the broadly-understood state – state-owned enterprises and housing cooperatives. It was possible to inherit the right to use the premises, and protection against eviction was

24 Population in 1990, 5.3 million, in 2010, 5.4 million; number of flats in 1991 was 1.6 million, in 2011, 1.7 million.

very high. In addition, the principle of *superficies solo cedit* did not work, which means that there was a separation of land and structures. There was a shortage of dwellings, in particular in the capital and industrial cities, and attempts were made to remedy this situation by massive construction of large panel buildings. The lack of a housing market, in particular its private rental segment, caused low mobility of people.

The political transformation meant a change of ownership relations, and privatisation and reprivatisation processes were necessary. The problem of returning properties to their former owners began to be solved already in the early 1990s, the first group entitled to make restitution claims consisted of former owners who had been deprived of their properties for debts, as they had had the obligation to carry out repairs, but the inability to derive income from their properties had made them unable to pay for the necessary technical interventions. The state had paid for the repairs and taken over the real estate. Too short a time for submitting and documenting claims meant, however, that restitutions were not carried out, and subsequent legal acts regarding reprivatisation were issued. A conflict situation arose between real estate owners recovering properties and their users, i.e. between the ones exercising their reprivatisation and privatisation rights. The municipal housing stock was sold to its users on favourable terms, prices were negotiable, but limits were set top-down. Users of buildings returned to their owners, however, could not take advantage of this policy. In 2011, further regulations were issued to settle those disputes – tenants in reprivatised buildings were entitled to demand replacement premises and reimbursement of removal costs which should be covered by a public entity. Tenants who were not able to meet their housing needs by themselves were eligible. Municipalities sought to dispose of their obligations by transferring them to other entities – buyers of rental apartment buildings serving as replacement premises, and they awarded special grants to such entities.

Ownership support measures were also used – saving for housing purposes was awarded, and mortgage borrowers were helped. As a result of ownership changes, the share of private owners increased significantly, there was very little municipal housing, while considerable needs for social housing were reported, in particular in Bratislava and other large cities. A separate problem is the poor technical condition of the housing stock, new organisational and legal forms that have emerged – condominiums (similar to Polish housing associations) must find funds for repairs, which is not always possible. As a result of the privatisation process, housing cooperatives have become entities that no longer own but only manage the housing stock. The private rental segment has only just begun to develop, partly due to tax reasons.

The housing policy after the change of the political system did not play an important role, it was only over the years that the impact of housing conditions and the housing market on socio-economic development was observed. It should

be noted that the Slovakian housing market is characterised by a low number of dwellings per 1000 inhabitants. The presented concept of the National Housing Policy 2015 pointed to the need to increase the number of affordable dwellings and to introduce new actors into the housing system – non-profit entities that would operate on the supply side. At the national level, conceptual and legislative tasks were indicated, and the implementation of those tasks was delegated to municipalities. The necessity of having housing development programmes was indicated, determining, among others, the state of satisfaction of local housing needs, strengths and weaknesses of the housing market, as well as solutions to be adopted in the short and medium term. Municipalities that have such documents can apply for funding for social housing and infrastructure. Basic tasks are related to the provision of social housing, revitalisation, increasing quality standards of the existing housing stock (including energy efficiency), and cooperation with the third sector in the field of housing, special funds are directed to help the Roma. Currently, the state supports in particular the emerging rental sector.

Slovenia[25] is one of the countries that emerged from Yugoslavia in 1991, its economic situation was the best among all post-socialist countries joining the European Union. In the socialist period, housing was treated as a social good, not an economic one, private ownership and renting were possible, but social ownership was fundamental. As part of Yugoslavia, Slovenia had autonomy in deciding on specific matters, including the rules for providing housing to its citizens. In the mid-1960s, a systemic reform was carried out, which resulted in transferring the burden of obligations in the housing sphere to enterprises – co-financing dwellings for their employees – and gave a special role to lending banks. In 1980, a new form of ownership rights was introduced, a specific combination of the civil code and socialist law, special rules for the use of premises were adopted, granting the entitled individuals fewer rights than provided by ownership but more rights than tenant rights. There were also dwellings for people with financial or personal problems, their construction was financed by enterprises, and their rent rates could be lower. The ownership structure was of a special character, as approximately 68% of public housing belonged to enterprises, 30% to municipalities, and 2% was governmental. The private rental sector hardly existed.

At the end of the 1980s, economic and social problems were reflected in reduced construction activity, enterprises and cooperatives limited new housing investments. The political transformation resulted in the need to create a new legal framework. The Slovenian Constitution stipulates the obligation for the state to create conditions so that housing needs should be met. Therefore, the state acts in a comprehensive manner for all citizens and should cooperate with other housing policy actors. Its task is to create rules and norms that determine the shape of the

25 Population in 1990, 2.0 million, in 2010, 2.0 million; number of flats in 2001 was 0.6 million, in 2011, 0.7 million.

housing market. Direct financing of housing and the provision of new housing stock have ceased. The state's obligations regarding direct assistance in satisfying housing needs are limited to a group of citizens in a bad financial and living situation. The social ownership of dwellings, which in the socialist period amounted to approx. 33% of the housing stock, has been abolished.

Existing users of dwellings had the right to buy them, unless the buildings were subject to reprivatisation. The sales conditions were very favourable – 10–20% of the market value of dwellings was paid. At the end of 1994, the privatisation process was basically completed, approx. 60.7% of public housing dwellings disposed of and approx. 5.7% reprivatised. The money obtained through privatisation was to be used to stimulate the supply of dwellings, but in reality it was used for other purposes.

Users of dwellings and buildings that were returned to their former owners were entitled to non-market rent and special protection against lease termination, but their legal situation was much worse than that of tenants benefiting from privatisation. It was recognised that there was a conflict of interests between tenants and former owners, and attempts were made to adapt legal regulations accordingly, but in practice there were many irregularities (new owners sought to remove tenants at all costs). Ultimately, the issue was regulated by granting tenants the right to buy their dwellings within 5 years (provided that the new owner agreed), or to purchase another dwelling or build a house, and part of the funds was provided by the state (36% in cash and 25% in vouchers).

The Housing Fund of the Republic of Slovenia was established, municipalities also had their own funds, and NGOs joined in those activities. The Housing Fund granted long-term loans to both citizens and institutional entities. In addition, a long-term housing saving scheme was introduced in 1999 to support financing. Funding support became less attractive due to a change in economic conditions, hence in 2006 the rules were changed to be more flexible, and special grants were introduced for young first-time buyers. Those forms of assistance were withdrawn in 2012 due to low interest.

In 2003, new legal regulations were introduced to stimulate the development of the rental segment, attempts were made to regulate relations between landlords and tenants so that both parties felt safe, and the tax policy was adjusted. Efforts were also made to solve the problem of existing vacancies and to stimulate renovation activities. Low construction activity was a nationwide problem, but an increase in the number of residential units completed in the following years was accompanied by an increase in prices, and hence a decrease in the affordability of dwellings. The technical wear of the housing stock was also mentioned as one of the main problems. The housing policy was clearly outlined thanks to the relevant documents, but it was not fully implemented. High activity was assumed in the area of social housing construction, however, adequate financial resources were not provided for this purpose. The new Housing Policy for 2015–25 also indicates

that it is necessary to increase the affordability of dwellings, in particular for people who are not able to satisfy their housing needs themselves. However, municipalities that have to implement this obligation in practice do not have sufficient funds. Solutions promoting rental opportunities on a non-profit basis have been introduced.

Poland[26] is a country where a large housing deficit has existed for many decades as a result of economic as well as historical and social determinants. The state regained independence in 1918, but it failed to unify its legal systems or significantly improve the economic situation in the next 21 years. There were very significant spatial disparities, also in terms of satisfying housing needs, and one should not forget about the damage that resulted from both world wars. As early as in 1919, rents for residential premises were frozen, this principle was repeated after the end of World War II. The housing shortage was exacerbated by mass migration to cities. The socialist state used the pretext of neglecting buildings by private owners (due to huge technical needs and a lack of funds, they were not able to pay for renovations) and took away the ownership of residential buildings.

After 1957, there was more flexibility in the approach to private property, it was allowed to a limited extent, however, renting premises was based on administrative decisions and the owner of the dwelling or building could not decide who would live there or what the rent would be. Construction activity depended on political decisions, the state took over the role of housing supplier, but this role was not a priority from the point of view of socio-economic development. Housing cooperatives were recognised as entities that were to provide new housing units, large panel construction developed, and users obtained rights to premises being a combination of lease and ownership. Despite intensive construction activity on the eve of the political transformation, the housing deficit in 1988 was estimated at approx. 1.3 million housing units. It became more acute in the following years, because with the transformation came the housing crisis due to a lack of financing (investments that had already begun were completed, but no new ones were started). The problem of losing financial capabilities concerned also citizens, due to high inflation and a lack of systematic support for housing financing, individuals relied on loans of primarily family nature.

The legislative framework related to a new shape of the housing market did not appear until 1994, which indicates the low importance of the issue in the assessment of the political elite at the time as well as the magnitude and scale of the difficulty associated with the new regulations. The Residential Tenancies and Housing Benefits Act of 1994 aimed to introduce new rules in the relationship between the landlord and the tenant, the rules were not fully market-based – the time for removing tenant protection was postponed till 2004. The Act also stipulated the

26 Population in 1990, 38.1 million, in 2010, 38.2 million; the number of flats in 1988 was 10.7 million, in 2011, 12.6 million.

obligations of municipalities in terms of satisfying housing needs of citizens. Municipalities as part of their own tasks were to create the conditions for citizens to fulfil their housing needs themselves, and directly help those who were unable to do so on their own.

The second Act, the Unit Ownership Act of 1994, introduced new entities – housing associations (condominiums) consisting of owners of premises who are also joint owners of their common parts. In 1997, the Real Estate Management Act 1997 was issued, which comprehensively covered many aspects of the real estate market, including privatisation of the housing stock. Municipalities had complete freedom in determining discounts granted to tenants buying their premises. Due to its very strong technical wear, municipalities sought to dispose of as much of the municipal stock as possible, and discounts reached over 90% of the premises value.

Reprivatisation was not resolved in a comprehensive manner, disputes in the parliament over the content of the bill lasted until 2001, when it was finally possible to pass the Reprivatisation Act. However, the Act was vetoed by the President and it never entered into force. Impatient owners tried to recover their properties through individual proceedings brought before common courts. It should be mentioned that special rules pertained to real estate acquired in Warsaw on the basis of so-called Bierut's decree, no statutory solutions were applied here either, but it was easier for former owners to recover property through judicial and administrative proceedings for procedural reasons. As in other post-socialist countries, a conflict arose between owners of recovered properties and their current users. Priority was given to restitution claims, but the new owner entered into the legal position of the previous one together with concluded contracts. Lease termination was only possible under certain circumstances, and an increase in rent was also subject to certain conditions. In this situation, the owners tried to dispose of tenants in ways that were not always legal.

Housing cooperatives were subject to special legal regulations for many years, which strengthened their position, but eventually they were forced to mass privatise their own resources. Currently, cooperatives play the role of the co-owner and manager, almost completely ceasing construction activities, as their role as the provider of new housing stock was taken over by development companies.

In the framework of supporting the housing market, the National Housing Fund was established in 1995, the legal basis for the functioning of non-profit entities statutorily focused on the construction and renting out of housing units was established, and long-term saving rules to meet housing needs were implemented. The Fund was liquidated in 2009, its role with certain restrictions was taken over by the State Development Bank (Bank Gospodarstwa Krajowego). Social housing associations, which initially developed their activities due to privileged financing, had to significantly limit those activities, as there were no budget funds available, while the savings system in the form of building societies

was not adapted to the economic conditions of that time and was not used. In the 1990s, tax breaks for the construction, purchase or renovation of residential real estate were introduced, but they were generally abolished in 2001. In 2006, activities supporting young buyers (Family in Its Own Home, then Home for the Young) began to be carried out. The support was targeted at middle-income people who were able to take out a mortgage and purchase their own properties, and as a result of implemented solutions, prices increased.

Municipalities may apply for co-financing for building social housing. Currently, a lack of affordable housing is the biggest problem, and part of the private rental market is hidden in the grey market area for tax reasons. Municipal dwellings have mostly been privatised, those that have been left are blocked by existing tenants whose economic and personal situation has never been verified. Waiting lists for social housing are very long. The technical condition of the housing stock, both purchased by tenants and owned by municipalities, is often very poor, and a lack of funds for repairs and modernisation can been seen, though revitalisation is carried out in some cities. New government initiatives are heading towards the development of the rental market, also of a non-profit nature, but despite existing legal regulations are not actually implemented.

Already during World War I, **Hungary**[27] had legal regulations limiting the freedom of operations on the rental market, the legislation changed in the following years, but restrictions on rent rates for residential premises and on the possibility of terminating the contract remained in force. After the end of World War II, there was a political change that brought nationalisation or strict state control over the private housing stock that met certain conditions. Even in the socialist era, efforts were made to reduce the housing deficit caused by the process of migration to cities by means of long-term investment plans for the construction of new dwellings. In the 1970s, apart from a significant increase in the number of new dwellings, their standard and size also improved. Since the beginning of the 1980s, the regulatory housing policy has been relaxed due to the state's inefficiency (financial problems), and greater independence in meeting the housing needs of citizens has been made possible. Even before the political change, privatisation of public housing stock began, and its pace has increased significantly since the 1990s. The legislation of 1993 set out detailed rules for the purchase of communal flats by their tenants, municipalities could not refuse the sale, but the time limit for tenants' claims was drawn – the year of 1995, which was then extended until 2000. Currently, those municipalities that wish to dispose of their housing stock may attempt to sell it.

Reprivatisation in the form of a return in kind was not carried out, hence there was no problem of conflict between tenants and private owners regaining

27 Population in 1990, 10.3 million, in 2010, 10.0 million; the number of flats in 1990 was 3.7 million, in 2011, 3.9 million.

ownership. Owners unlawfully deprived of property during the socialist period and their heirs were entitled to compensation in the form of reprivatisation vouchers. They could use them to pay, for example, for the ownership of the flats they were tenants in, for the ownership of other real estate they bought, or for state-owned enterprises put on sale. Before the political change, around 50% of housing stock in cities was part of the public housing stock and the regulated rent was paid for those dwellings. Due to widespread privatisation, the share of public housing is currently estimated at only approx. 3%. In addition, it should be mentioned that primarily the housing stock in better technical condition was bought for ownership, and the housing stock left to municipalities is often not habitable. As a result, a strange picture of the municipal housing stock has emerged, because despite many applications and long waiting lines, some dwellings are vacant. This situation is characteristic of large cities. Municipalities have been charged with the obligation to help the most needy, but they do not have the resources to do so. Rent rates in the public housing stock are much lower than in the private rental market. Part of the rental market stock remains in the grey area for tax reasons.

The housing policy of Hungary has been changing – initially, as in most post-socialist countries, the government sought to bring about the end of the state's direct involvement in the housing market. The housing sphere was transferred to municipalities, but there was no specific legal framework. It emerged only around the mid-1990s, and new institutions were created, including savings and loan banks and mortgage banks. This allowed for the development of mortgage lending and the housing market itself. Due to urbanisation and rapid development of some cities, strong demand for dwellings in those centres was observed, with a simultaneous lack of interest in the existing stock in less popular regions. Until the outbreak of the financial crisis, many positive changes had been observed, associated with the support of buyers using mortgage loans (the possibility of taking advantage of various types of tax breaks and subsidies). The housing policy strongly focused on supporting ownership resulted in a dynamic increase in mortgage loans, an increase in property prices, but also a burden on the state budget on a scale that no-one had previously anticipated. Those who benefited from the introduced rules were the richest people, while due to the lack of social housing for low-income people, this group was in a worse position. Limiting the generosity of the state was not easy for political reasons, it was initiated in 2004 by reducing payments to borrowers, and in 2007 income tax deductions were abolished. However, this did not stop the dynamic development of mortgage lending, as cheaper loans denominated in foreign currencies were widely used. The banking sector was interested in maintaining this commitment, among others, due to additional earnings on currency spread.

A dramatic change occurred as a result of the outbreak of the financial crisis. The fall in the value of the Hungarian currency hit borrowers and banks that had become too involved in foreign currency loans. In addition, banks changed

interest rates on the loans, which in general became a serious burden for borrowers. Granting new loans became rare, developers limited their construction activity, and property prices as well as the number of transactions decreased. Various solutions were introduced to help borrowers who were unable to meet their loan repayment obligations, e.g.: the state bought the dwellings of the debtors and then concluded long-term lease agreements with them with the option to buy. In order to increase construction activity, in 2016, the VAT rate in housing construction was reduced, which brought the expected result. In addition, financial support was increased for families, in particular those with three or more children, if a new housing unit was purchased. As a result of various tools for the stimulation of the housing market, prices increased and the number of transactions grew.

With regard to the less affluent group, the abolishing of housing allowances paid by the state was an important step, this task was transferred to the municipal level. There is high demand for social housing, municipalities, however, are unable to provide its adequate supply, and they cooperate with NGOs in providing housing assistance.

3.2.2. The evolution of housing markets in other countries

Austria[28] is one of the countries that has not succumbed to trends of liberalisation of the housing market and limiting the scope of state housing assistance, as support for less affluent households has been maintained and the public housing stock has not been massively privatised. It should also be noted that the 2008 crisis did not directly affect Austrian housing. The rental housing stock has maintained a high share, its social part is greater than the market part (57% to 43%), and dwellings are characterised by high quality. For most households, dwellings are affordable. However, due to an increase in costs, the share of households overburdened with housing costs among households in general and households at risk of poverty has risen. In cities, there is a marked shortage of social housing for households in a difficult financial situation. The housing policy is still favouring the supply side, focusing on providing affordable dwellings for rent. In view of the high demand for social housing, new rules have been introduced to increase supply. First of all, a reduction of construction costs by lowering the standard of social housing and facilitating the spatial planning stage have been proposed. The rent reform is still a problem. Changes in the share of owners have been smaller than in many other European countries.

28 Population in 1990, 7.7 million, in 2010, 8.4 million; the number of flats in 1991 was 2.7 million, in 2011, 3.6 million.

In **Belgium**,[29] the housing policy was passed from the central to the regional level in the 1980s, but the promotion of ownership remained the basic objective of the housing policy for all policy makers. For this purpose, tax breaks have been used, resulting in an increase in the share of owners and a decrease in the share of tenants. Owners make up a very large part of the resource users, social housing is available to a small group, and the demand for it is much larger than the supply. The crisis did not have a direct impact on the housing market, and new regional initiatives have since appeared, e.g.: in Wallonia, it was felt that the stigma of being tenants in social premises should be reduced, and people with higher incomes were introduced into the social housing stock to promote a tenant mix, the name of the social housing dwellings was also changed to housing of public interest.

In **Denmark**,[30] since the 1970s, rent rates in the sector of social housing have risen significantly, which has made them unaffordable for some households, and attempts have been made to counteract this fact with special loans for the social housing stock for maintenance expenses. In the second half of the 1980s, the share of owned properties decreased due to the abolition of tax breaks. In the 1990s, many owners who had purchased their dwellings founded housing cooperatives. The structure of rights to real estate changed, because the share of private rental properties significantly decreased, as their owners sold them due to rent restrictions, while the share of social housing increased. More recently constructed dwellings for rent have been released from rent restrictions (the housing stock built after December 31, 1991), however, they are not competitive in relation to social housing. The latter group is supported by many instruments, resources are allocated to its construction, renovation and modernisation. The renovated housing stock is of high quality and rent rates are comparable to market rates, there are also definitional and classification-related problems concerning the social housing stock. The crisis of 2008 caused financial problems, particularly severe due to the earlier economic boom and increase in construction activity. It should also be noted that Denmark and the Netherlands are countries with the highest level of mortgage debt. Many housing co-operatives were dissolved, and the dwellings were instead allocated for rent due to a lack of buyers. Currently, many revitalisation activities are carried out, they have the character of local initiatives, and in addition, energy efficiency improvements are introduced.

In **Finland**,[31] deregulation of the financial market was carried out in the 1980s, which enabled development of a commercial market for mortgage-backed loans.

29 Population in 1990, 10 million, in 2010, 10.9 million; the number of flats in 1991 was 3.7 million, in 2011, 4.6 million.

30 Population in 1990, 5.1 million, in 2010, 5.5 million; the number of apartments in 1991 was 2.1 million, in 2011, 2.5 million.

31 Population in 1990, 5 million, in 2010, 5.5 million; the number of apartments in 1989 was 2 million, in 2011, 2.5 million.

The state withdrew from granting loans, but instead, loan repayment was introduced. And since the 1980s, the state has become a guarantor of loans and credits granted for housing purposes under certain conditions. Many rental properties were built, but restrictions were introduced for entities using public support – limiting rent rates and selecting tenants, generally increasing construction of the housing stock for rent was to help stimulate construction activities. Over time, restrictions were relaxed, but they were not lifted completely. After 2000, developers who wanted to use state aid had to register as entities operating in the public interest (this did not mean that they had to operate non-profit). At the end of the 1980s, a housing bubble began to swell, and the increase in ownership share was hampered by the crisis in the early 1990s. The state acted anti-cyclically in the years 1992–1993, which brought effects. A reduction in tenants' privileges, changes in tax regulations pertaining to mortgage loans, and low interest rates contributed to a renewed interest in ownership. In the 1990s, special property rights were introduced, something between tenant and ownership rights, which have been in force in the social housing stock ever since. Planning restrictions limiting the supply of land for construction, in particular around Helsinki, and an increase in prices since the 1990s have resulted in a decrease in the availability of dwellings in specific locations, with a relatively high vacancy rate in the north of the country. Young people have problems with meeting their housing needs, moreover, there are difficulties resulting from the maladjustment of the housing stock to the needs of an aging population and the decreasing size of households. Rents have been freed in general, but income criteria apply to social housing. There are many assistance programmes, including ones combating long-term homelessness.

In **France**,[32] after the golden age of social housing, support for ownership began, expressed through financial incentives to save for housing purposes, and private owners of the rental housing stock were also supported by assistance provided for financing renovation activities. After 1977, a shift from the system supporting the supply side to providing support of a subject-related nature occurred. Income limits for tenants of social housing and quality requirements for the social housing stock were introduced. In 1981, the control over rent rates was tightened, in addition, high interest rates and the economic crisis caused a reduction in construction activity. To counteract the situation, the government granted tax breaks to owners of rental properties, which caused the expected effects in the form of an increase in construction activity. In the 1990s, the focus was placed on regeneration activities, low-interest loans were granted to entities providing social housing, and in recent years also to private owners. After 2000, programmes centred around the idea of regeneration of local communities and local institutions were created, the purpose was to identify and restore vacant space and build more affordable dwellings. The

32 Population in 1990, 56.7 million, in 2010, 61.2 million; the number of flats in 1990 was 21.5 million, in 2011, 27.9 million.

possibility of using the type of property rights falling between lease and ownership was created (due to the costs for the budget, the idea was abandoned after several years). Decentralisation of the housing policy has been carried out, and currently municipal departments and associations deal with this policy. Facilitation has been also introduced for the transfer of land for social housing. Since 2015, the situation on the housing market has improved, a low level of interest rates, an increase in the number of transactions, and a rise in housing construction activities are conducive to this improvement. The problems concern the availability of housing in large cities, 25% of the new social housing stock is to be allocated to the poorest. It is postulated to mix social and market tenants so as not to lead to a situation resulting from post-war social housing – the existence of a kind of ghettos for the poorest and emigrants created in multi-storey buildings located in the suburbs. In 2017, a governmental project for the national housing strategy was announced, the aim of which is to increase the number of affordable dwellings.

Germany,[33] split into two countries with different political and economic systems, had separate path dependencies that did not merge until the 1990s. West Germany, due to the very intensive development of housing construction in the post-war period, significantly improved housing conditions of its citizens. Strong protection of tenants and regulation of rents were characteristic features. New dwellings built for rent were freed from such regulation. Even if the dwellings were built with public funds, the residential premises were transferred to the private rental sector after some time. The assumption was that a large number of dwellings for rent – social and private – was to foster competition and help maintain low rents. In East Germany, there was no such strong housing demand, the housing policy was not among the priorities of the socialist state, the population did not increase, and housing estates for workers were built around industrial cities. After the fall of the Berlin Wall, there occurred many phenomena that affected the housing situation of East and West Germany. First of all, many citizens from the eastern part decided to move West, leaving their dwellings vacant. The vacancy rate increased very quickly in particular in locations that had lost their attractiveness (e.g.: many people emigrated from settlements located around closed industrial plants). Legal acts were introduced regulating the principles of restitution and compensation for real estate taken over in the socialist period. It is estimated that the claims resulted in a return to previous owners of approx. 600,000 dwellings. In addition, principles of privatisation of the housing stock owned by the state and state-owned enterprises were introduced. As a result of those processes, the ownership structure changed. In 1993, the owner-occupied dwelling rate was at the level of 26.1% in East Germany and 41.7% in West Germany, while in 2014 at 34.4% and 48.4% respectively (Destatis). Therefore, among EU countries, Germany is still the country

33 Population in 1990, 79.4 million, in 2010, 82.4 million; number of flats in 1998 was 34.5 million, in 2011, 36.9 million.

with the lowest share of dwellings inhabited by owners. The housing policy has been decentralised since 2006, the Länder (German federal states) have been implementing it on their own, except for common rules on housing allowances and building premiums. The Länder may request the transfer of funds from the central budget for the implementation of the housing policy under certain conditions.

In Germany, there is a strong tendency for the population to concentrate in the largest cities, where the deficit of affordable dwellings is the greatest. According to the Espin-Andersen classification, Germany is a conservative welfare state, similarly to Austria, which is manifested, among others, in its housing policy. As a rule, the state should take care of citizens in need. A social market economy in the aspect of its housing policy should balance the impact of the market and the social policy. A special role is played by the Länder and large cities, which, as indicated earlier, decide on the tools used and the objectives of local housing policy. The energy and climate change-related policy complements the housing policy. Municipalities are the direct implementer of the housing policy, as they are obliged to provide assistance to individuals that are not able to satisfy their housing needs on their own. This is done, among others, by regulations encouraging developers to transfer part of the dwellings for rent with restricted rents to low-income people or to sell them at a discount. Developers can also hand over some of the dwellings built placing them at municipalities' disposal. Traditionally, tenants and groups in a difficult life situation, e.g.: the elderly or the disabled, are strongly protected.

In recent years, a big wave of migration has become a serious challenge to meeting housing needs, in large cities construction activity is too low in relation to the reported needs, and rents are growing faster than the income of the population. For this reason, restrictions on rent increases for residential premises are being introduced locally. It should also be added that construction costs increased by almost 50% between 2000 and 2016 due to the requirements of using modern technologies and energy-saving solutions. It is also estimated that the housing stock is not prepared for the needs of the elderly, and Germany is the oldest society in the EU, hence the problem of the lack of housing for the elderly will continue to grow.

Greece[34] continued its unique in the EU approach to the housing problem, i.e. a lack of official housing policy. Family-provided assistance remained one of the most important elements of the system of satisfying housing needs. Development activity was based on contracts concluded between land owners and construction companies. Established joint ownership allowed for settlement in the form of transferring the previously agreed number of dwellings to the current owner of the land. Such contracts suited the parties because ownership was very fragmented and it was difficult to carry out large projects due to the small size of

34 Population in 1990, 10 million, in 2010, 11.1 million; number of flats in 2001 was 3.5 million, in 2011, 4.1 million.

plots in cities. Developers often secured buyers at an early stage of construction and were able to use their funds. They also took out mortgage loans. After the building was completed, a condominium, similar to the Polish housing association, functioned in it.

In the years 1987–1994, the rental market for residential premises became completely liberalised, nowadays social housing and rental allowances are no longer provided. A characteristic feature of Greece is a large number of vacant dwellings, some of which function as holiday homes. The grey area of rental dwellings which for tax reasons remain outside the official market is a problem. In 2014, the property tax reform was carried out, as a result of which the tax rate has increased significantly.

The financial crisis is still felt in Greece, costs related to satisfying housing needs are a significant part of household expenditure, and the level of ownership is falling. Construction activity has also decreased and prices of flats and houses have dropped. Some owners are unable to pay back their mortgages. Due to budget constraints and a bad economic situation, housing assistance is currently addressed to homeless people and people in extremely poor financial circumstances. Public entities provide them with residential premises and help pay the rent.

Ireland[35] joined the EU in 1973 along with the United Kingdom, but their economic situation did not change significantly due to this fact. Urbanisation and industrialisation progressed but not very dynamically. Since the 1970s, the majority of the population lived in cities, which resulted in increased demand for housing and higher prices in specific locations, but changes were slow until the mid-1990s. Since the 1960s, housing renewal processes were carried out, involving the demolition of slums and the creation of new urban fabric, and the state supported the ownership of houses and flats. As early as in the 1970s, the rate of owner-occupied dwellings was high – approx. 70%. This was the result of the privatisation of local government housing stock. In non-urbanised areas, prices were low, employees also obtained lower incomes compared to employees in cities. Along with economic development, construction activity also increased, and in the second half of the 1990s, a housing boom, which ended with the outbreak of the financial crisis, began. Very rapid economic growth caused a positive balance of migration (many of the Irish who had left the country earlier returned) and a dynamic increase in demand for dwellings. The availability of mortgage loans caused a very rapid increase in prices, which in turn further stimulated construction activity. In addition, the housing policy continued to support ownership through tax breaks (for taking out mortgages, as well as stamp duty and capital gains tax), the state also stimulated renovation activities through its subsidies. The financial crisis led to a crash in the housing market, a collapse of the construction sector, and problems with the repayment of housing loans due to an increase in unemployment.

35 Population in 1990, 3.5 million, in 2010, 4.5 million; number of flats in 1986 was 0.9 million, in 2011, 1.6 million.

Negative equity caused by the fall in real estate prices occurred and vacancy rates increased. A number of applications for social housing and social assistance grew. Such housing was primarily at the disposal of local governments, and there were not many housing cooperatives or non-profit entities providing social housing. In this situation, a decision was made to change the housing policy, and in 2011 the principle of ownership neutrality was introduced, i.e. it was recognised that the goal of the state ceased to be stimulating home ownership. Currently, local government can conclude a contract with a private owner of rental dwellings and locate tenants who have been qualified for housing assistance in this housing stock. A housing allowance system has also been introduced.

Until 1981, the private rental housing segment did not develop due to top-down rent restrictions and the resulting economic unprofitability. Legal changes caused more interest in investing in dwellings for rent, the buy-to-let scheme in the years before the financial crisis became very popular. Due to the crisis, many of the investors who were borrowers had serious repayment problems, some even sold dwellings to tenants. The relations between the tenant and the landlord are strictly regulated by law, and since 2008 housing standards have been in place indicating the minimum conditions of rental premises. A tenant who has reservations can report them to the municipality which then carries out an inspection. If it reveals irregularities, the public entity may prohibit renting the premises until the problems are rectified. A private entity (Private Rented Tenancy Board) which mediates between tenants and landlords in the event of a dispute has been operating since 2004.

A steep decline in construction activity which occurred after the financial crisis has contributed to the low supply of dwellings, and an increase in prices and rent rates is observed. There is also a shortage of social housing. In 2016, a new housing policy programme was launched aimed at: increasing the construction activity of the private sector, increasing the availability of social housing, improving the functioning of the private rental market, reducing vacancy rates, and combating homelessness.

Italy[36] is one of those countries where the importance of family ties in meeting housing needs is considerable. Spatial diversity related to the division of the country into the economically developed north and the backward south is also important, as it causes internal migrations to the developed cities of northern Italy, where there is a shortage of dwellings, in particular public and social ones.[37] In addition, it should be remembered that Italy has been a migration destination for years and some of the housing problems have been the result of an increase in

36 Population in 1990, 57.6 million, in 2010, 60.5 million; number of flats in 1991 was 19.7 million, in 2011, 24.1 million.

37 The division of dwellings into public and social ones is specific for Italy, the former come from an earlier period and are primarily owned by municipalities, while the latter are created thanks to the involvement of the private sector and are characterised by higher rates of rent.

low-income populations with limited employment opportunities. In the pre-crisis years, mortgage loans gained in popularity and importance as a source of financing housing investments, however, the level of home loan burden is still lower than the EU average. This is due to, among others, the long tradition of using intra-family loans. Already in the post-war period, social housing was developed, privileges for housing cooperatives were introduced, and the tenant's position was strengthened. Due to budget difficulties, tenants of public dwellings were allowed to buy the premises at high discounts, and this process continues to this day, which means that the stock of such dwellings is small. It was assumed that the funds obtained would be allocated to housing needs, which did not happen. The rent-to-buy scheme is also used, while condominiums are common in the private segment.

The right to the use of a dwelling free of charge is specific to the Italian market, this applies primarily to family members, but in fact it is often used as a circumvention of tax regulations. Some privately rented dwellings remain outside the official market for tax reasons. There are vacant dwellings in both the public and private housing stock due to the low standard and technical wear of the resource. Some public housing is inhabited illegally, and approx. 650,000 families are officially awaiting housing assistance.

The financial crisis has affected in particular the possibilities of meeting the housing needs of poorer households. As a result, the independence of young people, especially men, has been delayed (57.9% of men aged 25–34 still live with their parents, this also applies to 40.6% of women of this age). For economic reasons, migration to cities in northern Italy has intensified, causing housing problems to mount.

In 2001, it was decided to stop the development of housing policy at the national level, and the competences in this respect were transferred to the regions. However, in 2005, the national policy was restored, due to the fact that there existed too large regional disparities, in terms of both housing policy and instruments used. In 2008, a definition of social housing was introduced as premises used on a continuous basis, acquired through construction or regeneration with the use of public and private funds. Users signed lease agreements for at least 8 years or purchased dwellings at an affordable price, the latter option serves social differentiation in buildings of a social nature. In 2009, a national housing plan was adopted, its main objectives were to increase the supply of social housing for rent and help home buyers. The support of ownership as the main goal was abandoned, in recognition of the fact that the greatest demand concerned renting social housing dwellings.

In order to increase the supply of dwellings, investment funds financing the construction of properties for rent were introduced, similar to American REITs. The use of partnerships between local governments and construction companies as well as tax breaks for private owners renting their properties at lower than market rent rates are also envisaged. There is a housing allowance system, but assistance provided in this way is limited to a small number of households.

In **the Netherlands**,[38] state support concerned owners living in their own properties and entities owning the social housing stock, the private rental sector was not stimulated, which, combined with restrictions on rent, discouraged investment in rental dwellings. In the 1980s, as in many other countries, market principles stimulating, among others, privatisation of the social housing stock began to have a dominant impact on the housing policy. The state withdrew from direct interference and minimised its own responsibility in meeting the housing needs of citizens, which was reflected in the reduction of financial support for construction activities (at the end of the century it was completely withdrawn). Despite those activities, the large capital gains (thanks to the dynamic increase in prices) that owners, often institutional investors, obtained, maintained their interest in the housing market. The change in funding rules meant that since the 1990s housing associations that provided and managed the social housing stock had to reorganise their sources of funding. The transformations also concerned the municipal housing stock, and it was decided that housing associations would better manage the stock than municipalities, and local government should only exercise control and supervisory functions.

The segment of owners residing in their own premises developed in the 1990s thanks to economic growth and an increase in wealth combined with the popularity of mortgage loans (low interest rates). The Internet crisis reduced interest in expensive dwellings, which diminished construction output. In the following years, the situation stabilised, but since 2008, as a result of the financial crisis, housing investment has been reduced, which has contributed to increasing the housing shortage, in particular in large cities.

The dynamic increase in the number and value of mortgage loans in the pre-crisis period resulted from financing conditions – the LTV ratio could be higher than 100% and for up to 30 years interest on the loan could be deducted as part of income taxes paid. After 1995, housing associations had to seek sources of financing outside the budget, hence they borrowed from commercial banks, while the state could guarantee such loans and credits. In addition, to raise funds, housing associations sold dwellings to tenants on privileged terms. In the private rental sector in the Netherlands, business entities such as pension and insurance companies could be owners of dwellings for rent, apart from individual entities.

The housing policy in the Netherlands stimulated ownership growth for many years, in particular assistance was targeted at people entering the housing market with a certain level of wealth. In addition, the rental housing stock, both social and private, was subsidised. The planning policy allowed for a significant influence of public authorities on the location, quantity and quality of newly constructed dwellings. The rental policy did not fundamentally differentiate between the social and

38 Population in 1990, 14.9 million, in 2010, 16.6 million; number of flats in 1989 was 5.8 million, in 2011, 6.9 million.

private housing stock, and tenants could apply for housing allowances. In general, the housing policy was not just about helping the poorest. The change that took place in the 1990s and resulted from a more liberal approach did not eliminate all previously used instruments. However, subsidies for housing construction were abandoned in favour of indirectly influencing construction activity by creating an appropriate institutional framework for the cooperation of local government, social housing stock owners and private entities. It was recognised that the objectives of housing policy would be implemented through the regulation of rents, the payment of housing allowances, tax breaks for those taking out mortgages, planning policy instruments and establishing the rules of using the social housing stock. The housing policy should be conducted in line with the social, tax and regeneration policy. Local government had the opportunity to allocate its own land to social housing at lower prices than market ones. Its cooperation with local housing associations concerned in particular investment plans for the development of social housing stock, and local government also cooperated with associations and non-profit organisations in the housing sector.

Current regulations concerning relations between the landlord and the tenant were established in 1998, the obligations and rights of both parties were indicated, and the purpose of the housing policy was to support the tenant's position in relation to that of the owner. In addition, on the basis of other regulations, local government was equipped with a strong right of interference, e.g.: the right to make use of vacant properties in difficult circumstances (e.g.: a lack of other possibilities for placing refugees). In the social sector, priority was given to low-income households and households in a difficult life situation characterised by specific features. The initial rate of rent and the rules for its change were regulated, and a system of rent tribunals was developed. The unique thing about the Dutch system is that this regulation applies to both types of housing stock – social and private. The rents which from the beginning had exceeded certain limits were liberalised. State assistance is directed to users of the rental housing stock in which regulated rents apply, the rate of rent depends on the quality of the property and its location (points system). The maximum annual increase in regulated rent is determined at the parliamentary level. The rent that is paid at a higher rate can be freely changed by the owner in agreement with the tenant (in accordance with applicable regulations).

Low affordability of housing is particularly evident in the largest cities, where prices are rising rapidly. Construction activity of housing associations is much lower than in the years before the crisis. In addition, the problem of social housing is the stigmatisation of its inhabitants. Hence, actions are taken to diversify households in terms of wealth, in particular in areas subject to revitalisation. A programme to support the elderly in independent living has also been launched in recent years.

Portugal[39] lagged in its socio-economic transformation, the great housing shortage was only overcome in the 1980s thanks to the state's investments. Portugal joined the EU in 1986 and was its poorest member. After 1981, the state's activity in the housing sphere was limited and the obligation to help meet the housing needs of poor households was transferred to municipalities. Generally, there were two directions of actions taken – support through access to housing from the social housing stock and subsidies in the case of property acquisition for the wealthier (abandoned in 2002). Housing problems were related to the ownership structure – due to the very strong protection of tenants, both against the termination of the contract and raising the rent, the private rental sector was very small. In addition, fast economic growth, low interest rates, tax breaks, and a high level of construction activity which resulted in a large supply of dwellings meant that it was most advantageous to acquire properties. In the following years, the change in the economic situation resulted in cuts in housing policy instruments, which led to a halting of the increase in the share of owners in the ownership structure. The demand for rental properties increased, but there was shortage of such properties on the market. Attempts were made to reactivate interest in the private rental market, but legal regulations gave tenants such a strong position that superficial changes did not bring desired results. In the 1990s, attempts were made to completely change the rules of renting residential premises. Municipal rental agreements were distinguished. They could be indefinite or concluded for a 5-year period, and the parties could negotiate the amount of rent. However, due to the fact that the new regulations only applied to new contracts, little changed on the market. In 2006, an attempt was made to change the institutional framework once again, the automatic extension of lease agreements was abolished, the eviction rules were modified, and the possibility of terminating contracts concluded for an indefinite period (but with a five-year notice period) was introduced. Despite these changes, it is still very difficult to increase the rent or terminate the lease agreement concluded on the old terms. There are two different systems existing side by side on the market. In 2012, the next reform was aimed at increasing the number of private rental dwellings by balancing the tenant's and landlord's positions and by simplifying administrative procedures for real estate revitalisation. Once again, the termination of indefinite-period lease contracts was facilitated, the possibility of an extraordinary increase in rent was introduced and eviction procedures changed. The changes were an expression of a new direction in the housing policy – strong support for ownership ceased in favour of assistance in the development of the rental segment.

The right to housing is stipulated in the Portuguese Constitution as one of social rights, it mentions general obligations of the state in the context of housing policy and cooperation with local government in areas such as: spatial planning,

39 Population in 1990, 9.9 million, in 2010, 10.6 million; number of flats in 1991 was 3 million, in 2011, 3.9 million.

urbanisation, transport policy, promotion of low-cost construction housing, and stimulating construction activity. The state is also obliged to conduct a housing policy adequate to the needs of citizens. In practice, state bodies at the national level are responsible for legislative activities and initiating specific housing programmes, while their implementation is carried out by municipalities. Social housing is intended only for households in the most difficult financial and life situation. Government programmes can support municipalities in creating social housing (e.g.: specific locations – Lisbon, Oporto) or support households in paying rent (e.g.: support for young people renting private dwellings).

A large number of vacant dwellings is characteristic of the Portuguese market, along with a lack of affordable housing, as many young people still live with their parents due to the high prices of housing in relation to income and restrictions in granting mortgages. In recent years, a gap has been recognised in the group of assistant recipients encompassing households not eligible for living in social housing but too poor to acquire their own property. The Social Market for Tenancy programme has created a new segment – between the private rental sector and the existing social housing stock. As a result of a partnership between the government, municipalities and banks, the dwellings are rented at a price lower by 30% than the market price (bank-owned homes are used).

Housing problems are not seen as common, they are considered to affect only a certain small group. After changes in the institutional framework, the role of the state as a regulator, not a housing stock provider, was determined. The state works through its tax policy, public-private partnership, providing financial support for specific entities as well as regeneration activities. The most important goals are to change the situation on the rental market, which will enable greater mobility of citizens and improvement of housing conditions, as well as renewal of the existing urban fabric. The housing market in Portugal is at a lower level of institutional development due to transparency problems, a lack of historical data on turnover and financing of purchases.

In 1978, **Spain**[40] adopted a Constitution which laid down democratic political principles and only after those political changes was the country able to effectively apply for the EU membership. It joined the EU together with Portugal in 1986. It is assumed that Spain is a welfare state with an important social component. The right to housing was explicitly mentioned in the Constitution as a social right. It was the state's responsibility to create conditions and set standards that would enable citizens to meet their housing needs. Despite thus formulated regulations, for many years, ownership was actively supported and the value of residential property as an economic good was strengthened, while the social housing sector was small and intended only for households in the most difficult life situations. Autonomous

40 Population in 1990, 38.9 million, in 2010, 46 million; number of flats in 1991 was 11.8 million, in 2011, 18 million.

areas were allowed to create their own housing policies as long as those policies were not contradictory to the rules set at the state level. City and provincial councils decide on specific housing policy instruments. At the state level, a housing plan covering several years is created, and similar plans are developed in autonomous areas. The plans contain information on directions of housing policy, including obligations of public entities in the field of supported housing construction and housing resource management.

In the first half of the 1980s, the economic downturn also affected the housing market, and it did not develop dynamically. At the end of the 1980s, the financial situation of households improved, as the recovery phase increased employment. Since the mid 1990s, housing became the flywheel of the entire Spanish economy, not only year-round structures were built, but also holiday homes in attractive tourist locations (in 2006, over 700,000 building permits were issued). Mortgages were widely available, with an LtV ratio of up to 100%. Due to the dynamic increase in prices and high demand, developers did not use state support and sold the constructed facilities on the free market.[41] The boom lasted until September 2007, when the financial crisis put an end to it. Residential construction lost all impetus, a huge number of unemployed people appeared, and this situation lasted for the next few years (in 2011 only 77,000 permits were issued for the construction of residential units). The banks tightened their lending policy, the loan was reduced to 80% LTV (unless the bank sold dwellings it had foreclosed, then it could credit up to 100% LTV). Many households stopped paying mortgages due to insufficient funds, prices fell, and banks took over real estate for debts. In this situation, the rental market became increasingly important.

As in Portugal, old and new rental laws coexisted in Spain. Changes in legal regulations that were supposed to lead to an increase in the supply of dwellings for rent and, consequently, to lower market rates of rent, had the opposite effect – rents increased, and the legal situation of new tenants was much worse than those to whom the old rules applied. The social housing rental segment was small, the private rental stock was also not large, ownership dominated, which resulted from the state support in the form of tax breaks, an increase in the wealth of households and the availability of mortgage loans. In 1994, the obligations and rights of tenants and landlords were regulated once again, changes concerned, among others, the duration of the contract and the possibility of changing the rate of rent. However, the new rules did not stimulate the rental segment, the situation became even more complicated because three lease systems operated at the same time (depending on the time of conclusion of the contract), rents did not fall, and tenants felt

41 In Spain, the instrument that kept housing prices affordable was the support of developers by the state in exchange for which they could not sell dwellings for more than the limits set by the public actor. However, despite the increase in limits, developers were not interested in this mechanism during housing boom.

less secure. In the area of financing rental stock investments, efforts were made to stimulate the activities of real estate investment funds, as they were thought to be an important channel for financing such activities. In the years 2002–2005, attempts were made to influence the construction of more social housing, but they failed. Housing prices rose very quickly, and investments in the housing market were popular. Another attempt to influence the increase in the supply of private rental housing consisted in creating an institutional framework – special advisory units (companies providing advice and guarantees). This instrument was abandoned in 2012 due to a lack of effects. In 2007, the economic situation in the housing market changed radically – demand decreased, unemployment increased very rapidly, and obtaining a mortgage loan was very difficult. Households entering the housing market were looking for residential units for rent, but there was a great shortage of such premises. Rent rates were high, so the state sought to improve the situation of the youngest citizens through special allowances to facilitate the payment of rent. Various types of support for tenants were also introduced at the regional and local level. In 2009, a new entity was introduced – special investment companies operating in the real estate market – whose existence was supposed to make the market more flexible, but this did not happen. Due to the crisis and the stalling of demand, the vacancy rate also increased in the primary market. It would seem that in the face of high demand for dwellings for rent, the use of vacant units would be the best solution. However, the property owners' fear of non-paying tenants due to difficulties with their removal from the dwelling and the spatial mismatch meant that there were many households with unmet housing needs and at the same time empty dwellings. It can also be noted that the needs of tenants and the quality of the dwellings were not matched due to the high standard of new residential units and a low level of households' financial resources. In addition, the grey market functioned in the rental market for tax avoidance purposes and ease of disposal of non-paying tenants and squatters.

The rental social housing stock was only for the most needy, contracts were concluded for 10 or 25 years, and there were several types of such housing (e.g. rotational, protected). Due to the lack of funds, some local governments privatised their housing stock.

The new direction of housing policy consists in the promotion of renting, stimulation of revitalisation activities and energy-saving construction. Special actions are also taken to protect the elderly, young and disabled people.

Sweden's[42] housing policy was an important element of the welfare state system. The principle of good housing standards was expressed in the Constitution as a basic social right and applied to all citizens. After a period of intensified post-war housing construction, housing saturation occurred outside areas characterised

42 Population in 1990, 8.6 million, in 2010, 9.4 million; the number of flats in 1990 was 3.8 million, in 2011, 4 million.

by the highest level of urbanisation. However, there was a shortage of dwellings with certain features, mainly small ones. In the late 1980s, it was observed that too many dwellings were built in inappropriate locations, primarily in areas outside cities and student centres. However, in the largest cities, a shortage of dwellings was observed, because jobseekers and foreign migrants were heading there. In order to reduce the concentration of the latter, regulations were introduced in 1985 designating the place of settlement of the immigrant (those were to be non-metropolitan areas). However, after obtaining the right of residence, immigrants moved to the largest cities. Those provisions were abolished in 1994.

Ownership was promoted through many privileges that could be enjoyed by buyers, back in the 1970s the combination of legal regulations (tax break and subsidies for housing loans) and economic conditions (low interest rates) meant that people even made money when buying a dwelling with the aid of mortgage. Those privileges were limited due to the economic crisis of the early 1990s, because the increase in interest rates caused a huge increase in the amount of state assistance. In subsequent years, efforts were made to promote energy efficiency and environmental protection. The buyer of a dwelling can deduct part of the interest (up to 30%) as part of taxes paid, while renovation and modernisation activities are supported by tax breaks. Mortgages are widely used, due to the financial crisis, the regulation was tightened in 2010 in such a way that it is not possible to obtain a loan higher than 85% LTV.

The spatial mismatch of the housing stock, visible already in the 1980s, brought financial problems for municipal housing enterprises which were dependent on revenues from renting residential properties. Those enterprises provided dwellings for rent, and at the same time, the rent rates that were in force in the municipal housing stock were a kind of indicator of the rate of rent applicable in the private rental segment, as utility value, resulting from the location and standard of the dwelling, was in effect. There were no fundamental differences between the rules regarding public and private rental housing stock, including common minimum housing standards related to quality. Everyone had the right to apply for a dwelling in the municipal housing stock, there were no income limits. Low-income households and retirees could apply for housing allowances.

In 1975, regulations were introduced that imposed on the private owner of rental properties an obligation to inform the municipality about vacant premises, and it could decide to have vacant dwellings occupied (as a rule, with a mix of tenants from different social classes). In 1987, this power was delegated to rent tribunals. These were the entities before which the owner and the tenants' association agreed the rate of rent and which settled disputes. The right to decide for the owner was abolished in 1993. Changes in the definition of the public housing stock were brought by the European Commission indicating the importance of social housing, as it was limited to housing for low-income households in a difficult life situation. It should be noted that Sweden's rules for supporting municipal housing enterprises were seen as non-compliant with state aid rules. The Swedish

Parliament decided in 2010 that there would be no social housing stock in this country, deprived municipal housing enterprises of tax breaks and special financing rules. They were to act as business entities.

Housing-related tasks are shared between the state and local government, each municipality must plan the supply of dwellings in its territory. The problem is low construction activity and a shortage of dwellings in major cities. To address the problems, in particular in terms of residential premises for older people and migrant young people, support was provided for housing construction for such households.

In the **United Kingdom**,[43] there is no single legal act fulfilling the role of constitutional law, constitutional principles are derived from a number of legal acts adopted over many centuries. In the housing sphere, the European Convention on Human Rights, adopted by Great Britain in 1998, is of significant importance.

The mass production of social houses and flats in the post-war period meant that in 1980 the public sector owned about 1/3 of the housing stock. During that period, there were restrictions on rent regarding the private rental stock, the state's responsibilities in helping citizens meet their housing needs were broadly understood, which was conducive to increasing the public housing stock and reducing the share of privately rented dwellings. In the following years, this share began to decline, which was an expression of changes in the housing policy in the era of Prime Minister Thatcher. The change that took place in the 1980s caused a reduction in the role of the state, a decrease in the social housing stock and a clear primacy of private ownership. A significant number of tenants in the social housing stock were allowed to buy out the dwellings at a high discount (right to buy), it was possible to buy shares in a dwelling spread over many years (shared ownership). The structure of users of the social housing stock changed because the wealthiest became owners. The residents remaining as tenants were ones who had no funds, including young people and pensioners.

The changes concerned the providers of social housing – after years of activity, local government removed itself into the background, and its place was taken by entities called Registered Social Landlords, and later housing associations. It should also be noted that in the political, economic and social sphere, large disparities among individual parts of the country were visible – this was additionally strengthened in 1997 by dividing it into separate systems with their own representatives (England, Wales, Scotland and Northern Ireland), and by the further division into four separate organisms which took place in 2006. Scotland kept its approach to social housing, England changed its approach to a more liberal one, while Wales chose intermediate solutions.

43 Population in 1990, 57.5 million, in 2010, 62.2 million; the number of apartments in 1996 was 20.4 million, in 2011, 26.3 million.

Modern rental law concerning residential premises was introduced in 1989, private owners could decide on the rate of rent. In the second half of the 1990s, buy-to-let support was introduced to encourage private investors to increase the supply of premises on the rental market. The change of regulations also concerned the eviction of tenants, it was easier to remove them. In addition, new entities were introduced, modelled on American REITs, which were also supposed to stimulate the development of the rental sector. An increase in the share of private dwellings for rent was achieved, but the financial crisis halted the investments. To remedy the situation, further support instruments were introduced in 2009. In the private sector, lease agreements are often concluded for a limited and very short period, which is not conducive to the security and stability of tenants' situation. There are specific minimum housing quality standards.

In the social rental segment, the privatisation and demolition of the old housing stock as well as the cessation of building the new housing stock by local government led to the situation where the share of municipal housing in the total housing stock decreased significantly. Private RSL entities and housing associations, which often took over from local government, increased their activities (they were recognised as private entities due to the principles of calculating public debt, thus their liabilities were not included in public liabilities). In addition, the option of using public-private partnerships in the housing sphere was introduced. In the public housing stock, rents are still lower than market rates (up to 80% of market rent in England), contracts provide a high level of protection for tenants, and new lease agreements have been introduced recently. Due to the strong influx of immigrants, housing assistance for this group has become necessary, and they often live in social housing. Co-financing of the construction of social housing is now allocated to housing associations which are the main creator of such housing.

In the pre-crisis period, many mortgage products were introduced, there was competition between among institutions, but the repayment offer for 25 years with a limit of 2.5 years of earnings and 90% LtV as the maximum amount of credit granted was not enough to buy a dwelling in a large city with a rapid increase in prices. The financial crisis caused price decline in some locations and mortgage restrictions, including the obligation of down payment. Due to difficulties with saving up the amount necessary for the down payment, a new support instrument was introduced in 2013 – state guarantees for mortgage lenders. If buyers had at least 5% of down payment, another option was a government loan of up to 20% of construction costs under certain conditions.

The rise in prices has meant that many households, in particular those made up of young people, are not able to meet their housing needs on their own. The number of homeless people has increased. The shortage of dwellings, especially in large cities, and high rent rates mean that tenants are overburdened with housing costs. Construction activity is too low in relation to the existing needs.

Local government is responsible for monitoring housing needs and demand in its area, making use of various instruments aimed at activating the supply side and assisting the demand side. The housing policy is currently focused on stimulating housing construction, supporting the private rental segment with financial incentives, and increasing the supply of social housing.

Part 2
Convergence of housing markets in European Union countries

Chapter 4

The essence of economic convergence and methods of its verification

4.1. The concept and types of convergence

4.1.1. Definitions of convergence and its essence

The concept of convergence has evolved over the years. The 1999 edition of PWN Encyclopaedia defines the concept of *development convergence* as convergence of evolutionary development, the situation when organs or shapes of individuals from different systemic groups living in similar environmental conditions become alike, and the *convergence theory* as a political concept popular in the 1960s and 1970s in the West which proclaims the thesis that socialist and capitalist societies are gradually becoming similar to each other under the influence of organisational and technical factors [Encyklopedia 1999, p. 392]. The concept of convergence in the sense used nowadays in economic research originated from the neoclassical concept of the theory of growth (1950s and 1960s), though significant empirical studies in this regard were conducted in the 1980s. In those studies, absolute and conditional convergence, along with beta-, sigma- and gamma-convergence, as well as other types of convergence were defined. The most important differences are visible in beta and sigma convergence – the first type concerns the hypothesis of poorer countries catching-up to richer ones, whereas the latter assumes the reduction of inequalities over time (formally, beta-convergence is a necessary but not sufficient condition for the occurrence of sigma-convergence). In the literature, one can find the view that the process of poorer countries catching up to richer ones has been occurring among Western European countries since the end of the 19th century, although the rate of convergence in the last 20 years has remained at a relatively low level of less than 2% per year. According to M. Ferry, that process stopped during the Second World War, in the 1970s and in the years 1982–1986 [Yuill, Ferry 2008].

In Poland, many studies indicate that the phenomenon of economic convergence (referring to incomes approximated by GDP per capita) at the level of regions or sub-regions does not occur [Gorzelak 2008; Wójcik 2008; Kusideł 2013a; Wójcik 2018].[1] In many cases, we actually deal with the phenomenon of divergence, i.e. increasing differences in the level of economic development. Other studies [Kusideł, 2011, 2013bc, 2014], however, indicate that the convergence hypothesis can be positively verified in relation to regional labour markets.[2] It can often be seen that a strong process of external convergence of countries, which means their fast catching up to the EU averages, is accompanied by internal divergence.

Research on convergence is important for at least three reasons. The first reason is of a social nature and results from the fact that differences in the standard of living are increasing, which causes social unrest. The second reason stems from a scientific dispute over factors of economic growth. According to the neoclassical school, convergence is a phenomenon that is a consequence of economic growth. Supporters of the theory of endogenous growth, the consequence of which is the opposite phenomenon to convergence – divergence, claim otherwise. The third reason results from the implementation of one of the largest European policies – the cohesion policy. Within its framework, significant sums are allocated to the Member States, especially those characterised by a low level of development (low GDP), in order to overcome their development differences. A question arises whether the funds allocated for equalising the development levels of the regions – i.e. convergence – are effective. In other words, whether the effects of implementing the cohesion policy are in line with its objectives.[3]

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1 According to Williamson's hypothesis, the phenomenon of convergence can be found only at the higher stages of individual countries' development. For lagging countries, an income increase initially causes an increase in inequalities between individual regions. As incomes grow, the increase in inequalities shows a downward trend until economic inequalities between regions decrease as a result of income growth. This is due to the fact that, in the initial stages of development, interregional connections, the flow of factors and the central policy of the authorities act selectively in favour of well-developed centres. On the other hand, a steady increase in per capita income contributes to the reversal of the trend in subsequent stages [cf. Gawlikowska-Hueckel, Zielińska-Głębocka 2004, p. 223].

2 In the work of Kusideł [2011], it is shown that when the division into two sub-periods – after the accession to the European Union and the analogous period preceding the accession – is adopted, convergence of labour market indicators is evident in the first of these periods. In the article, a cautious conclusion is drawn that the implementation of cohesion policy may affect the achievement of convergence in regional labour markets.

3 Although the ERDF funds are allocated to the poorest regions, regional inequalities in the Member States are increasing. Based on the first observations of this kind from the years 1988–1999, the European Commission has acknowledged the fact of certain feedback existing between the convergence process at the national and regional level [cf. Perez, Dones, Liano 2009, p. 512]. In this respect, the EC argues that national inequalities regarding income disparities between regions are transitory, as economic catching-up takes the form

4.1.2. Real convergence in economic theories

The convergence hypothesis is a conclusion drawn from neoclassical growth models initiated by Solow [1956] (sometimes also associated with the name of Swan [1956]). According to the neoclassical theory of growth, the necessary precursor of convergence between areas studied (countries, regions) is the diminishing marginal productivity of capital. This means that differences between areas are diminishing, as the poorer ones, competing through lower prices and costs, attract investments. In other words, falling productivity in richer regions encourages entrepreneurs to reallocate capital to regions with smaller capital resources in order to increase production efficiency. This leads to equalisation of capital (and capital per employee) between countries (regions), which, assuming similar technological advancement,[4] causes equalisation of production (production per employee) – i.e. convergence.

The mechanism described above concerns the so-called catching-up effect, which means that poorer areas achieve higher rates of economic growth than richer countries, and suggests a strong link between this process and economic growth. Convergence resulting from the neoclassical Solow-Swan model is a natural consequence of economic growth, since under the conditions of diminishing marginal productivity of capital (which is one of the assumptions of the Solow model) as the economy reaches its long-term equilibrium, the long-term production growth rate will be asymptotically decreasing. Due to the diminishing marginal productivity of capital, it flows to countries (regions) in which its stock (per capita or employee) is smaller, i.e. to poorer areas. This results in equalisation of capital levels, which implies convergence of income (products) and labour productivity.

Although the convergence hypothesis had been known since the mid-1950s, the intensive development of research devoted to this hypothesis took place as late as at the turn of the 1980s and 1990s. The real eruption of empirical and theoretical research on this topic was prompted by the work of Barro and Sala-i-Martin

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of specialisation, polarisation and regional differentiation only at the initial stage (which is generally in line with Williamson's hypothesis mentioned in the previous footnote).
From a more pessimistic point of view, some authors argue [Boldrin, Canova 2001] that the allocation of investments among the worst-developed regions is inefficient and makes the catching-up process difficult. This argument can be strengthened if we take into account the principle of additionality, which determines the regional allocation, as well as national public and private investments carried out on the basis of redistribution rather than efficiency.
Moreover, Puga [2002] has provided further arguments for the inefficiency of the EU regional policy. He shows that traditionally income diversification between regions was explained by factor endowments. In this context, removing obstacles to the movement of goods and/or factors contributes to convergence of these factors.

4 Kusideł [2013a] writes about the role of technological advancement in economic theories (Section 1.3.2).

[1992].[5] Empirical research indicated that convergence did not always occur,[6] and economic theories of endogenous growth, competitive to neo-classical ones, started to come to the fore [Romer 1994; Temple 1999; Lucas Jr. 1988; De la Fuente 1995; Aghion, Howitt 1988].

The most important feature of the new theories in relation to the neoclassical theory has been the weakening of the assumption of diminishing revenues. In particular, both convergence and divergence are possible in regional systems. For example, wage differences may be conducive to convergence through the location of production in regions with lower labour costs – this is a traditional approach to the business location theory. On the other hand, the interconnectedness of entrepreneurs stimulates innovation, and technologies created in this way are an essential source of growing marginal productivity of capital (which is additionally fostered by better developed infrastructure, proximity of customers or business partners and better qualified workforce). Finally, in some situations, one may encounter not diminishing (as it is postulated by the neoclassical theory) but increasing returns to scale. Admitting their existence creates the theoretical basis of the self-perpetuating process of economic growth which concentrates economic activity around large urban centres – metropolises.[7] Is convergence possible under such conditions? Yes, but not (only) as a consequence of accumulation of capital but (also) as a consequence of diffusion of innovations and technologies [Kusideł 2013a, p. 17 onwards]. Theoretically, the diffusion rate depends on the size of the technological gap – as the technological gap decreases, its further reduction becomes increasingly difficult. In addition to repealing the assumption about diminishing returns on capital employed, the theories of endogenous growth have been expanded with many additional growth factors that were not included in the neoclassical model (where those factors comprised physical capital, labour and technology which was treated exogenously). Models of endogenous growth depending on the adopted assumptions may anticipate both convergence and divergence of economies studied.

Ultimately, therefore, it cannot be said that the phenomenon of convergence stems clearly from the theory of economics. Models of economic growth provide

5 It should be noted that the main foundations as well as terminology for those studies were provided by the doctoral thesis of Sala-i-Martin of 1990.

6 This also concerned the countries of the European Union whose economies for many decades after the war were characterised by the reduction of economic inequalities (convergence). Inequalities began to build up since the 1980s, which initiated the reform of Structural Funds consisting in the reconstruction of the rules for their allocation and a significant increase in the budget in order to support less-developed regions [cf. Kusideł 2013a, pp. 146–147].

7 The concept of increasing returns to scale was formulated by Myrdal [1944] already in the first half of the 20th century. It assumed that the process of economic growth was cumulative, i.e. upon reaching a certain critical level of economic activity, a metropolitan centre may develop faster and faster due to the occurrence of the feedback effect [cf. Spójność wewnętrzna a konkurencyjność… 2009, p. 15].

diversified results regarding the occurrence of real economic convergence. Economic models, however, describe various mechanisms that may lead to convergence or make it impossible [Wójcik 2018, p. 24]. It is known from the neoclassical theory that economic convergence may take place in the case of the occurrence of diminishing marginal returns on physical capital and the possibility of using exogenous technological progress, i.e. mostly technologies emerging in more developed countries (regions). However, this effect will not last forever – the possibilities of absorption (imitation) of external technologies and economies of scale will not be able to last indefinitely if a given country (region) does not have an adequate scientific and institutional background allowing for a better use of the initial advantages.

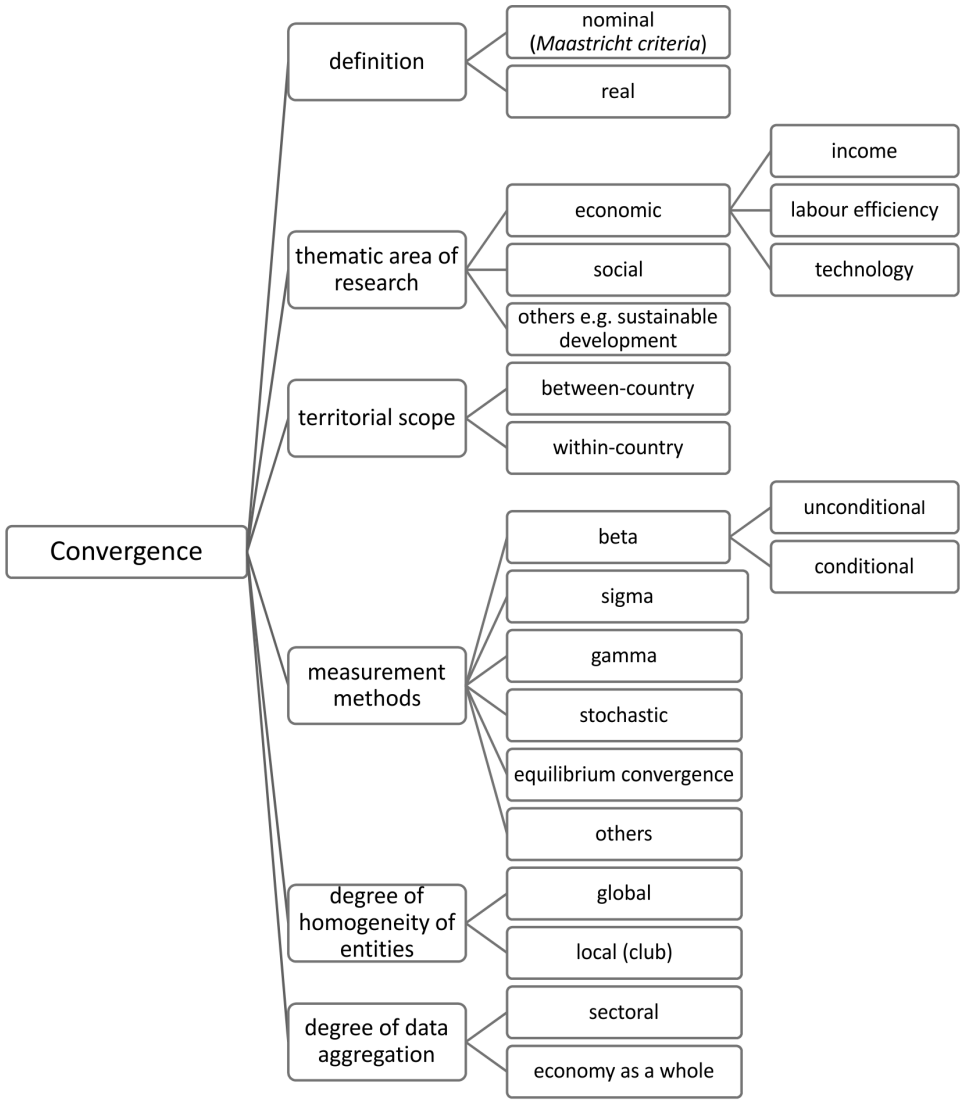
4.1.3. Types of convergence

Intensive research on the phenomenon of real convergence in the 1980s and later on has led to defining many types of convergence and different ways of its verification. The literature lists beta, sigma and gamma convergence, and recently also stochastic convergence, social, spatial, income, technological, sectoral and club convergence, as well as other types of convergence. The variety of definitions and methods of measuring the phenomenon of convergence leads to reflection on the concept itself, its sources as well as types and methods of its research. Convergence classifications according to the methodological criterion can be found in the work of Islam [1995]. Classifications of convergence concepts and methods of analysis have been carried out by Nowak [2003, 2006], Gajewski [2006], Kusideł [2013a], and Bernardelli, Próchniak, Witkowski [2017].

When we say convergence, we generally mean economic convergence, with GDP per capita being its most popular measure. Meanwhile, the convergence issue can be extended to many other areas of life than just the economy. For example, the cohesion policy implemented under the EU regional policy includes economic, social and territorial (spatial) aspects, analysed for the NUTS II and NUTS III regions [Kudełko, Prusek, Zieliński 2011, p. 23].[8] In particular, convergence of

8 In order to verify the convergence hypothesis, synthetic measures of implementation of the examined cohesion aspect should be adopted. To measure **economic** convergence, GDP per capita is usually adopted (although there are many works that use other economic measures, such as labour productivity, competitiveness, TFP, etc.). **Social cohesion** means reducing differences in the use of human capital and in the standard of living. The unemployment rate, the labour force participation rate (employment rate) or indicators showing the standard of living (in this work the estimates of the HDI voivodship index are used) are employed for its measurement. Increasing **spatial** (regional) **cohesion** takes place by eliminating barriers to the accessibility of regions, especially peripheral regions, through better communication and connections with centrally located areas (measured by travel time).

housing markets can be considered in both the economic and social areas. The classification of the convergence phenomenon according to different criteria of its division is presented in the following graph.



Graph 4.1. Classification of convergence according to different criteria
Source: own elaboration.

4.2. Methods of verification of the convergence hypothesis

In Section 4.1., various types of convergence which can be distinguished from the following points of view have been mentioned: the thematic area of research, the territorial scope and type of entities studied, their degree of homogeneity, the division of the economy into economic sectors, or the methods of verification of the phenomenon. Regarding this last criterion, two "oldest" concepts are particularly popular. They were proposed by Barro and Sala-i-Martin [1992]: beta- and sigma-convergence.

The first type of convergence – beta-convergence – means, generally speaking, the catch-up effect, when poorer areas catch up to initially richer areas (countries, regions), while the other type of convergence – sigma-convergence – assumes the reduction of inequalities over time.[9] The distinction between beta- and sigma-convergence takes on special meaning in situations where the results of these two types of convergence are in contradiction to each other: positive beta-convergence and a lack of sigma-convergence can be obtained for the same feature. Formally, beta-convergence is a necessary but not sufficient condition for the occurrence of sigma-convergence[10] [cf. Quach 1993, Sala-i-Martin 1995, 1996, Phillips, Sul 2017], which means that the situation in which poor regions/countries develop faster than rich ones does not necessarily mean reducing the gap existing between them.

4.2.1. Beta-convergence

As already mentioned, beta-convergence occurs if areas with an initially lower value of the examined feature (e.g.: GDP per capita) show a faster growth rate than areas of an initially higher value. Econometric models in which the response variable is the growth rate of the examined feature and the explanatory variable is its initial value are usually the statistical tool for verification of this fact. If it is the only explanatory variable, then the hypothesis concerning the occurrence of *absolute convergence* or *unconditional convergence* is tested. If there are additional factors in the model *conditioning* growth, then the hypothesis about *conditional convergence*

9 Reverse processes – when countries (regions) with initially lower (higher) values of the analysed variable are characterised by its lower (higher) rate of return and when the dispersion of the tested feature increases over time – are called beta-divergence and sigma-divergence respectively.

10 At the same time, sigma-convergence is a sufficient but unnecessary condition for beta-convergence (meaning that a lack of sigma-convergence does not mean at the same time that initially poorer countries do not develop faster than others).

is tested. Verification of both types of convergence can be made on the basis of cross-sectional data (regarding a group of studied countries/regions and the initial and final years of analysis) or panel data (regarding a group of countries/regions studied and many consecutive years of analysis). Depending on the type of data, other methods of estimating the convergence testing model should be used, which is why we describe them in two separate subsections.

Beta-convergence for cross-sectional data

To verify the beta-convergence hypothesis using cross-sectional data, we employ a model explaining the growth of the studied feature in regions/countries ($i = 1, \ldots, N$), between the time period t_0 and $t_0 + T$ using the initial value of this feature in the regions [cf. e.g.: Sala-i-Martin 1996, p. 1334]:

$$\frac{1}{T} ln\left(\frac{y_{it_0+T}}{y_{it_0}} \right) = a + bln(y_{it_0}) + u_{it_0,t_0+T} \tag{4.1}$$

where the negative (positive) and statistically significant value of the b estimator:

$$b = -\frac{\left(1-e^{-\beta T}\right)}{T} \tag{4.2}$$

means the occurrence of convergence (divergence).[11] The lack of significance of the b parameter means that neither convergence nor divergence of the examined phenomenon occurs.[12]

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11 Sometimes regression (4.1) is written with a negative sign before the parameter b, then the positive (negative) value of b means the occurrence of convergence (divergence), and the convergence coefficient should be calculated as $\beta = -\ln(1 - b)$.

12 The statistical significance test of b is sometimes omitted in the literature. The justification for such behaviour may be the fact that this parameter is mainly used to estimate the rate of convergence given by formula (4.3) – then the statistically insignificant value of b will translate into a low rate of convergence (divergence). It should be noted, however, that this behaviour is correct only to a certain extent, since for large values of the standard deviation $S(b)$ (in 4.1) one of the ends of the confidence interval for b can have a different sign than the parameter. In this case, it should be assumed that there is a probability that the real value of the b parameter estimator has not only a different value (which affects the rate of convergence) but also a different sign, which changes the conclusion concerning the existence of convergence. The statistical significance of b guarantees that such a situation will not occur, but at the same time, with the confidence levels of at least 90% assumed in economic studies as a standard, a lack of convergence should be found in many analyses, despite the negative value of b. In particular, in cross-sectional regressions for relatively small samples, standard estimator errors are usually so large that often the statistical significance of the parameter estimators cannot be confirmed. In such situations, it seems that "softening" the confidence level regime is a better solution than not carrying out significance tests at all.

The *b* estimator is most often used to calculate the β parameter key for convergence called the *convergence coefficient,* which is calculated based on the transformation of equation (4.2) into the form:

$$\beta = -\frac{ln(1+bT)}{T} \tag{4.3}$$

The sign of the parameter β, similar to *b*, informs about the occurrence of convergence or divergence, namely if:

- $\beta < 0$, the divergence process occurs between the *i* regions,
- $\beta > 0$, the convergence process occurs between the *i* regions.

In terms of equilibrium convergence, the convergence coefficient β indicates what percentage of the distance from equilibrium is covered in one period (usually one year) or how much the difference between the actual value of the tested variable and the value of this variable in the state of stationary equilibrium decreases in a given unit of time [cf. Malaga, Kliber 2007, p. 85]. The higher the value (for the module) of the coefficient β, the faster the rate of convergence (divergence). On the basis of the convergence coefficient, one can calculate the so-called *half-life*, which informs us how long it takes for the current differences to be halved:[13]

$$hl = -\frac{ln2}{\beta} \tag{4.4}$$

Regression 4.1 is a simple and intuitive way to study convergence, though one can formulate certain critical remarks in this respect [cf. e.g.: Quah 1993; Friedman 1992; Ciołek, Brodzicki 2007]. One of such remarks pertains to the fact that other individual characteristics of each economy apart from the initial value of the analysed variable are omitted. Their omission means that they constitute a confounding factor, therefore the condition of a lack of correlation between the random component and the explanatory variables is often not met, which causes the bias of estimators (it also causes low values of R^2 in cross-sectional regressions due to the fact that unaccounted for *explicitly* variables are reflected in the random component).

Supplementing the above-presented absolute beta-convergence equations with additional growth factors *y* leads to a conditional convergence model in the following form:

$$\frac{1}{T} ln\left(\frac{y_{it_0+T}}{y_{it_0}}\right) = a + bln(y_{it_0}) + \Pi X_i + u_{it_0,t_0+T} \tag{4.5}$$

where the vector $\boldsymbol{X}_i$ represents all the individual characteristics of the economies concerned.

13 Or, according to Malaga, Kliber [2007, p. 85], this value determines the number of years necessary to halve the difference between the value of the variable under consideration in the *i*-th region at the time period *t* and its value in the state of stationary equilibrium. The authors call this factor the half-convergence period [Malaga, Kliber 2007, p. 78].

Beta-convergence for panel data

The econometric theory for dynamic panel regressions has developed rapidly alongside a growing number of empirical studies involving macro, international, regional and micro economic data [cf. Phillips, Sul 2007, p. 1771]. Therefore, the use of beta-convergence models based on cross-sectional analysis is associated with the loss of information on the volatility of the economies in particular areas over time (beyond the initial and final year of analysis) and also with not including individual features of each economy. The omission of unobservable features of particular economies means that these traits are a confounding factor, therefore the condition of a lack of correlation between the random component and the explanatory variables may not be met, and then the estimators are not consistent or unbiased. Another disadvantage of the use of a series of cross-sections is a small number of observations, which translates into a small number of degrees of freedom limiting the number of explanatory variables in the model. Islam [1995] as well as Canova and Marcet [1995] show that the β parameter can be underestimated in traditional beta-convergence analysis on cross-sectional data. The combination of time-series and cross-sectional data into one sample – a panel data sample – allows us to overcome the latter problem. The use of appropriate estimation methods (for panel data) also allows for taking into account effects specific to objects (regions) and/or time. Equations for panel data which allow us to verify the beta-convergence hypothesis take the form (4.6) in the case of testing absolute convergence:

$$log\left(\frac{Y_{it}}{Y_{it-1}}\right) = a - (1 - e^{-\beta})\, log(y_{it-1}) + \eta_i + \nu_t + u_{it} \tag{4.6}$$

or (4.7) in the case of conditional convergence:

$$log\left(\frac{Y_{it}}{Y_{it-1}}\right) = a - \left(1 - e^{-\beta}\right) log(y_{it-1}) + \delta X_{it} + \eta_i + \nu_t + u_{it} \tag{4.7}$$

where:

η_i – effects specific to individual objects (countries/regions) *i*. The effects η_i show the differences between them resulting from other factors not included on the right side of the equation which are usually immeasurable, thus they cannot be explicitly included in the equation,

ν_t – periodic effects for the year *t* reflect events common for all objects (countries, regions) in the years under consideration (e.g.: effects of the 2008/2009 crisis),

u_{it} – the random component of the equation.

In order to estimate the above-presented functions, a form linearised in relation to the parameters is used, i.e.:

$$log\left(\frac{Y_{it}}{Y_{it-1}}\right) = a + b\,log(y_{it-1}) + \eta_i + \nu_t + u_{it} \tag{4.8}$$

$$log\left(\frac{Y_{it}}{Y_{it-1}}\right) = a + b\,log(y_{it-1}) + \delta X_{it} + \eta_i + \nu_t + u_{it} \tag{4.9}$$

where: $b = -(1 - e^{-\beta t}) \Rightarrow \beta = -ln(1+b)$.

Panel models can take the form of the so-called *pooled regression model*, for which the sample is combined into panel data, but apart from increasing the number of degrees of freedom, no additional effects are distinguished. Most often, however, the *Fixed Effects Model* (FEM) and the *Random Effects Model* (REM) are used. The choice of one of these three types of models (pooled, FEM, REM) is made on the basis of statistical tests, most often: the Chow, Breusch-Pagan and Hausman tests.

There are several methods for analysing panel data. The most popular estimators for estimating panel data, apart from the Classical Least Squares (CLS) Method, include Fixed Effects Models (FEM) and Random Effects Models (REM).

Panel models estimated by the CLS method do not take into account individual effects or time effects. In the literature, it is stated that in the case of applying the CLS method to panel data in convergence analysis, the results are often overestimated. Nevertheless, this method can be used as a starting point in panel data analyses (the model estimated by means of the CLS method can be used in the case when all objects in the panel are homogeneous and possible deviations of empirical values from theoretical values result from random causes).

Fixed Effects Models (FEM) allow us to capture individual effects for each object in the cross-section. There are three types of models. The first one is the *between* model, which is estimated using the CLS method. However, instead of individual observations, the group means of variables are used in the model. These models allow us to reduce measurement errors. The second model is the Least Square Dummy Variable (LSDV) model. There are several approaches to building such a model. The first approach is a one-way model that takes into account only differences in groups. It is built by adding binary (dummy) variables for the n–1 objects to the CLS model. In the absence of significant differences between groups, a model is built that takes into account differences over time. Then, dummy variables for each object over time are added to the CLS model. Both of these models have the character of one-way models. There is also a possibility of building a two-way model which includes both individual effects and time effects. Thus constructed models are estimated using the Least Squares Method. The third and last type of the FEM model often used in convergence analyses is the *within* model. In contrast

to the LSDV model, instead of dummy variables, the model considers deviations of the variable from the group mean. The model also does not include a constant. The model parameters are estimated using the CLS method, and the directional coefficient is the same as in the case of the LSDV model estimation.

Random Effects Models (REM) are such panel models according to which individual effects result from random effects and do not change over time. Differences between individual objects in such models are mapped in the form of inter-group error variance. To estimate individual effects in the model, distribution parameters are estimated. In order to estimate the RE estimator, the Generalised Least Squares Method (GLS) is most often used. Unfortunately, in the case of small samples, RE estimators are often biased and ineffective.

To choose the best model among the three types of panel models discussed above, one should use two basic panel tests: the Breusch-Pagan test and the Hausman test, which are described in many textbooks and computer packages.

In general, the results of convergence analysis using panel data differ significantly from the results obtained based on cross-sectional data, as the convergence rate estimates obtained in panel models are much higher. For example, the rate of convergence for the OECD countries amounted to 9% [Islam 1995], for the EU regions – to as much as 23% [Cannova, Marcet 1995], and for Spanish regions – to 12.7% [de la Fuente 2002]. A partial explanation of such high convergence rates in panel models is the fact that these are the rates of speed of convergence to the individual (and not common) periodic equilibrium point for each territorial unit [Wójcik 2018, p. 52].

Another reason for high growth rates in convergence models for panel data is the issue of endogeneity of explanatory variables or autocorrelation of the random component. Arellano and Bond [1991] as well as Blundell and Bond [1998] indicate that the estimation of the regression equations discussed above by means of the GLS method leads to the generation of biased convergence rate estimators. It should be noted that the growth models used in convergence analysis are in fact autoregressive models, as they can be written in the form of:

$$ln(Y_{it}) = a + (1+b)ln(y_{it-1}) + \delta X_{it} + \eta_i + v_t + u_{it} \tag{4.10}$$

In the case of the dynamic form of the panel model (which the above-presented equation is), the literature recommends the use of special estimation methods. Among these methods (which can be found in Baltagi [1995], Dańska-Borsiak [2011]), the Generalised Moment Method (GMM) is used by most researchers.

4.2.2. Sigma-convergence

Since the end of the 1980s, a certain contradiction occurring in the results of convergence tests has become increasingly often mentioned, consisting in the fact that the occurrence of beta-convergence (the negative relationship between the growth rate and the initial value of the variable reflecting the idea of beta-convergence) does not necessarily mean the reduction in the dispersion of distribution of the tested variable.[14] Authors of some publications (in particular Friedman [1992] and Quah [1993], as well as Lichtenberg [1994]) have become opposed to research estimating convergence with the use of tests that only show that poor regions develop faster than rich ones, since it may turn out that inequalities between them are not reduced. Criticism of beta-convergence has facilitated the defining and consolidating of another concept: sigma-convergence, which denotes the reduction in inequalities of the studied feature over time. The first step in testing this kind of convergence is to estimate the measure of inequality (differentiation, variability, dispersion) of the studied phenomenon among the analysed areas in subsequent periods of analysis. In the second step, it should be assessed whether the applied measures of inequality of the studied phenomenon have significantly decreased over time. If so, then sigma-convergence occurs. In practice, different approaches which we describe below are used to test whether inequalities have significantly decreased over time [Kusideł 2013a].

The simplest test determining whether the dispersion of the studied phenomenon has significantly decreased over time is the comparison of variances in two periods of analysis. Such a test has been proposed by Lichtenberg in his paper [1994] in which a comparison of variances in extreme periods (i.e. the initial and final one) is made.[15] If it can be shown that the variance at the end of the analysed period is significantly lower than at its beginning, then sigma-convergence occurs. Otherwise, i.e. when the variance at the end of the period is significantly higher, sigma-divergence occurs. In order to formally investigate the occurrence of sigma-convergence (sigma-divergence), the following set of hypotheses should be verified [Kusideł 2013a, p. 61]:

H_0: $\sigma_1^2 = \sigma_T^2 = \sigma^2$ (lack of convergence or divergence),

H_1: $\sigma_1^2 > \sigma_T^2$ (convergence occurs) or

H_{1a}: $\sigma_1^2 < \sigma_T^2$ (divergence occurs),

14 A similar phenomenon is described in the paradox of regression towards the mean (Galton's paradox), which is based on an erroneous interpretation of the transient nature of extreme observations as evidence of decreasing dispersion of distribution.

15 In practice, the estimators – S^2 – of the variance – σ^2 are compared.

where: σ_1^2, σ_T^2 denote, respectively, the variance of the examined feature among *N* studied areas in the initial and final period of analysis.

The following statistic serves to verify the above-presented hypotheses:[16]

$$T_1 = \frac{\hat{\sigma}_1^2}{\hat{\sigma}_T^2} \tag{4.11}$$

which has the Fisher-Snedecor distribution with (*N*–2, *N*–2) degrees of freedom. Values higher than critical values allow us to reject the null hypothesis about the equality of variances (i.e. about a lack of convergence in favour of the convergence hypothesis – H_1 or the divergence hypothesis – H_{1a}).

Some authors argue that the above-presented test does not take into account the relationships between the tested variances and, therefore, is burdened with committing a type II error (an incorrect rejection of the convergence hypothesis). Caree and Klomp [1997] propose the statistics T_2 and T_3, which, according to the authors, are free of the above-mentioned bias (they can be used even for short time periods) to verify the hypotheses of equality of variances.

Statistic T_2 has the form:

$$T_2 = (N-2{,}5)ln\left[1+\frac{1}{4}\frac{(\hat{\sigma}_1^2-\hat{\sigma}_T^2)^2}{\hat{\sigma}_1^2\hat{\sigma}_T^2-\hat{\sigma}_{1T}^2}\right] \tag{4.12}$$

where: $\breve{\sigma}_{1T}$ is the covariance calculated for the initial and final year of analysis: $\hat{\sigma}_{1T} = \sum_i (y_{i1}-\overline{y}_1)(y_{iT}-\overline{y}_T)/N$. Statistic (4.12) has a distribution $\chi^2(1)$.

Statistic T_3 has the form:

$$T_3 = \frac{\sqrt{N}(\hat{\sigma}_1^2/\hat{\sigma}_T^2-1)}{2\sqrt{1-\hat{\pi}^2}} \tag{4.13}$$

where: $\hat{\pi}$ is the estimator from the equation: $y_{iT} = \pi y_{i1} + u_i$.[17]

16 Formula 4.11 applies when the variance decreases over time: then the numerator is greater than the denominator. If the variance increases over time (the variance for the final period is higher and the variance for the initial period is lower), then the divergence hypothesis is tested, and the components of the quotient (4.11) should be reversed (so that the higher value appears in the numerator).

17 The beta-convergence equation can be written as: $y_{iT} - y_{i0} = by_{i1} + u_i$, where $\pi = (1 + b)$. In the case when there is a negative relation between the growth rate and the initial value, i.e. when $b < 0$, then $\pi \in (0; 1)$. For a positive correlation between the growth rate and the initial value of the studied phenomenon, formula (4.13) cannot be used because the radicand in the denominator (4.13) would be negative.

Statistic (4.13) has a standardised normal distribution. The above-presented test, proposed by Caree and Klomp [1997] for convergence testing can be modified also for the purpose of testing divergence. In the case when the variance increases over time. i.e. when $\breve{\sigma}_1^2 < \breve{\sigma}_T^2$, statistic T_3 is negative, but it seems possible to apply then the absolute value of the statistic and the following inference method: if $|T_3| > 1.64$ (the last value is the critical value of normal distribution for a 5% significance level), then divergence occurs for $\hat{\sigma}_1^2 < \hat{\sigma}_T^2$ and convergence for $\hat{\sigma}_1^2 > \hat{\sigma}_T^2$.

Carre and Klomp [1997] compared the results of convergence calculated on the basis of formulas (4.12) and (4.13) with the ones quoted earlier by Lichtenberg [1994] using formula (4.10). The study concerned convergence of productivity in 22 OECD countries for the years 1950–1994 and confirmed that during that period convergence occurred. However, for the period 1960–1985 (which was the subject of Lichtenberg research), statistic T_1 suggests a lack of convergence of GDP per capita, while the other two statistics suggest its occurrence. The reason for this discrepancy is the use of statistic T_1 for short periods of time and the related probability of committing a type II error.

Weak sigma-convergence

The method of sigma-convergence testing using statistics (4.10)–(4.13) omits changes in the studied phenomenon that occur between the initial and final periods of analysis. The sigma-convergence testing can be supported by the graphic visualisation of variability measures in particular periods, which helps to assess whether the reduction in variability is continuous or not. For such a series of data (consisting of measures of variability of the studied phenomenon – e.g.: regional GDP per capita for particular years), a linear trend model in the following form can be used:

$$S_{yt} = \alpha_0 + \alpha_1 t + \xi_t \tag{4.14}$$

where:
S_{yt} – is the measure of dispersion or concentration of the examined variable y among individual areas (countries, regions) in the time period t ($t = 1, \ldots, T$),
α_0, α_1 – structural parameters,
t – the time variable,
ξ_t – the random component of the equation.

On the basis of equation (4.14), we conclude about the occurrence of sigma-convergence, if the parameter α_1 is negative and statistically significant.[18] The above-presented approach to testing convergence (proposed in Kusideł [2013a,

18 The α_1 parameter has also a reasonable economic interpretation. It indicates how much the dispersion (or concentration, depending on the used measure S) between the areas increases (for the estimator $\alpha_1 > 0$) or decreases ($\alpha_1 < 0$) on average from one period to another

p. 62] as well as in Kong, Phillips and Sul [2017, p. 7 onwards]) may, however, result in erroneous indications if the phenomena tested show common stochastic and/or deterministic trends that may accompany panel samples on the basis of which convergence is tested. If such trends occur, then the concept of relative convergence described in section 4.2.3 should be used.

4.2.3. Relative convergence

The test described below was proposed in the work of Phillips and Sul [2007]. It consists in performing the so-called *log*(*t*) *regression test* for panel data. The test philosophy is based on the observation that panel data in some cases can be decomposed into two factors:

$$X_{it} = g_{it} + a_{it} \tag{4.15}$$

where:
g_{it} – permanent common component,
a_{it} – transitory component,
$i = 1, \ldots, N$ – the number of objects,
$t = 1, \ldots, T$ – the number of observations.

In order to determine the common component and the idiosyncratic component, formula (4.15) is transformed into:

$$X_{it} = \left(\frac{g_{it} + a_{it}}{u_t} \right) u_t = \delta_{it} u_t \tag{4.16}$$

where:
δ_{it} – the time-varying idiosyncratic component,
u_t – the time-varying common component for all objects in the panel.

According to the Phillips and Sul model, convergence occurs between the examined objects described by the variable X_{it} when:

$$\lim_{t \to \infty} \frac{X_{it}}{X_{jt}} = 1 \text{ for all } i \text{ and } j. \tag{4.17}$$

This condition is referred to as *relative convergence* and can also be presented as:

$$\lim_{t \to \infty} \delta_{it} = \delta \text{ for all } i \tag{4.18}$$

period (usually from year to year). The sigma-convergence testing by analysing the trend through the coefficient of variation was proposed by Friedman [1992].

Changes of the idiosyncratic component δ_{it} over time are included in the form of the following semi-parametric model:

$$\delta_{it} = \delta_i + \sigma_{it}\xi_{it},\ \xi_{it} \sim iid(0,1); \tag{4.19}$$

$$\sigma_{it} = \sigma_i L(t)^{-1} t^{-\alpha},\ \ t \geq 1,\ \ \sigma_i > 0 \text{ for all i} \tag{4.20}$$

where:
$L(t)$ – a slowly varying function, such as $log(t)$,
α – the speed of convergence,
δ_1, σ_i – region-specific fixed terms.

Phillips and Sul [2007, p. 1788] have proposed a test procedure according to which the null hypothesis assumes convergence between objects as opposed to the alternative hypothesis assuming non-convergent process:
H_0: $\delta_i = \delta$ and $\alpha \geq 0$,[19]
H_1: $\delta_i \neq \delta$ for all i and $\alpha < 0$.

In the first stage, verification of the hypothesis requires the calculation of a series of variance coefficients H_1/H_t obtained as follows:

$$H_t = \frac{1}{N}\sum_{i=1}^{N}\left(h_{it} - 1\right)^2 \tag{4.21}$$

where:
H_t – the cross-section variance of the variable X in the time period t,
N – the number of objects in the panel,
h_{it} – the parameter characterising the path of changes of the i-th object against the arithmetic mean determined for all panel objects:

$$h_{it} = \frac{X_{it}}{N^{-1}\sum_{i=1}^{N} X_{it}} \tag{4.22}$$

In the long term, under the conditions of the convergence process $h_{it} \to 1$, and $H_t \to 0$ [Holmes, Otero, Panagiotidis 2019, p. 7]. The second stage of the test procedure requires the estimation of $log(t)$ regression in the form:

$$log\left(\frac{H_1}{H_t}\right) - 2log\,L(t) = \hat{a} + \hat{b}\cdot log(t) + \hat{\varepsilon}_t \tag{4.23}$$

19 The alpha factor is calculated on the basis of the $log(t)$ model described by equation (4.23).

$$\text{for } t = \lceil rT \rceil, \lceil rT \rceil + 1, \ldots, T ,$$

where:
$L(t) = log(t)$,
$\hat{b} = 2\hat{\alpha}$ – the estimated regression parameter needed to calculate $\hat{\alpha}$ – the estimate of α included in the tested hypotheses,
$[rT]$ – the first observation of the period included in the regression which is most often set at 1/3 of the whole sample ($r = 1/3$).

In the last stage, the occurrence of convergence is verified using the one-sided *t-student* test in relation to inequality $\alpha \geq 0$ from the null hypothesis based on the estimated parameter $\hat{b}$ and its HAC standard error. At a significance level of 5%, the null hypothesis is rejected when $t_b < -1.65$ [Philips, Sul 2007].

The rejection of the null hypothesis assuming convergence of all examined objects does not, however, preclude the occurrence of club convergence. Phillips and Sul [2007, p. 1798 onwards] define the club identification algorithm according to 4 stages:

1. Extracting a long-term trend from the time series using appropriate statistical tools (e.g.: frequency filters) and ordering the time series based on the value of the last observation. In the case of high volatility series, the ordering is based on the mean values from the last 50% of the observations in the time series;
2. The creation of the first group of k objects ($2 \leq k < N$), based on the ranking from the previous stage, with the highest value of statistic t_k for the estimated $log(t)$ regression satisfying the condition $t_k > -1.65$;
3. A gradual increase in the number of objects in the group (along with the re-estimation of $log(t)$ regression) until $t_k > -1.65$;
4. Creating subsequent convergence clubs from the remaining objects using $log(t)$ regression. The algorithm presented in points 1–3 is repeated until the group of k objects for which the statistic t_k satisfies the condition $t_k > -1.65$ cannot be built [Holmes, Otero, Panagiotidis 2019, p. 9].

4.2.4. Gamma-convergence

At the end of the 1980s, there were opinions that not catching up, which is the basis of beta-convergence (described in Section 4.2.1), but decreasing differentiation in subsequent years, i.e. σ-convergence (described in Section 4.2.2), should be the basis for determining the occurrence of convergence. Rejecting these views, Sala-i-Martin [1996a] argues that convergence is a broad concept that concerns the assessment of the mobility of individual areas over time within the distribution of the examined feature (e.g.: income per capita). Sala-i-Martin equates this

intra-distribution of mobility with the concept of beta-convergence. If the interpretation of beta-convergence proposed by Sala-i-Martin [1996a] is correct, then it seems equally appropriate to examine changes in the ranking of the examined objects. This approach, presented by Boyle and McCarthy [1997, p. 257–264], is called *gamma-convergence*. The authors of the cited work recalculated the data from the work of Barro and Sala-i-Martin [1992] showing that, contrary to the conclusions of Barro and Sala-i-Martin, convergence between the OECD countries in the post-1972 period cannot be determined. This contradiction is explained by Boyle, McCarthy [1997, p. 263] by the bias of estimators which is 20 times greater for the approach proposed by Barro and Sala-i-Martin than in the case of the rank correlation approach, which is the basis of gamma-convergence. Gamma-convergence is based on the calculation of the following Kendall's coefficient of concordance [Kusideł 2013a]:

$$\gamma_t = \frac{var\left(R_{it} + R_{i0}\right)}{var\left(2 \cdot R_{i0}\right)} \tag{4.24}$$

where:
γ_t – Kendall's coefficient of concordance in the time period t,
R_{i0}; R_{it} – the rank of i-th object in the initial and final period of analysis.

The lower the value of the coefficient, the greater the changes in the ranking of objects between the analysed periods, which indicates gamma-convergence. The following chi-square statistic is used to statistically verify the value of γ_t:

$$\chi_t^2 = 2 \cdot (n-1) \cdot \gamma_t \tag{4.25}$$

where:
χ_t^2 – the empirical value of statistic in the time period t,
n – the number of objects,
γ_t – Kendall's coefficient of concordance in the time period t.

The empirical value of the chi-square statistic lower than the theoretical value (for n–1 degrees of freedom and the level of significance α) allows us to confirm the occurrence of gamma-convergence [Dittmann 2014]. Otherwise, the null hypothesis is rejected in favour of the alternative hypothesis that accepts a lack of gamma-convergence (no significant changes in the ranking of the studied objects).

Chapter 5

Testing for convergence across housing markets

5.1. Convergence processes in housing markets – a literature review

Housing markets have been a popular area for identifying convergence processes for many years. This is connected with their significant socio-economic importance both in macro and microeconomic dimensions (see Chapter 1). The special character of the housing market as well as its multifaceted impact on the functioning of the individual and the entire economy are an important premise to undertake research on the direction and nature of changes occurring in the housing sphere, both internationally and regionally. An analysis of convergence of housing markets is a natural complement to the existing research on determinants and mechanisms of the development of national and regional markets. It allows us to verify whether the spatial diversity of housing markets shows a tendency to decline or has a rather permanent or deepening character and what processes it stems from, as well as what the short and long-term consequences of the studied trends are.

However, housing market convergence can be perceived in multiple ways. First of all, it is important to define the areas in which convergence of housing markets is identified. In contrast to the classical macroeconomic approach, in the case of the housing market, it is difficult to clearly define the universal measure of its development. Therefore, reference can be made to measures defining the level and quality of satisfaction of housing needs, measures characterising the purchasing power of households in the housing market, measures indicating the level of development of housing financing as well as the quality of the institutional environment of the housing market. In practice, however, residential real estate prices are the most popular reference variable included in the research procedure.

Choosing the right measure does not solve problems of a methodological nature. As the literature indicates, convergence of housing markets can be viewed through the prism of classical methods of its measurement consisting in determining the occurrence of beta-, sigma- and gamma-convergence. They enable the identification of convergence processes or diminishing diversity of housing markets in cross-sectional terms. Bearing in mind the fundamental influence of local and regional factors on the functioning of real estate markets, and consequently their spatial segmentation, many researchers refer to a broader interpretation of the phenomenon of convergence. It is characterised as a tendency of housing markets to respond to emerging market shocks to a similar extent. The scope and strength of the concurrence of selected housing indices in the long-term are therefore verified [Ghiraldo, Ciula, Festa 2013, p. 64]. Stationary tests (also for panel data) and co-integration analysis are methods most often used to identify thus understood convergence.

The vast majority of research achievements to date are related to the empirical verification of price convergence in regional and local housing markets. Analyses of this nature have been repeatedly carried out for the American and British markets. The methods of identifying price convergence developed in the course of subsequent studies have been successively implemented in the assessment of changes occurring in the housing markets of Europe, Asia, Africa or Australia. However, the conclusions derived from these studies are not clear-cut.

The verification of price convergence for the US market conducted, among others, by Kim and Rous or Nissan and Payne has not indicated one universal direction of changes in housing prices for all regional markets. However, the phenomenon of club convergence has been identified [Kim, Rous 2012 and Nissan, Payne 2013]. The research of Montañés and Olmos emphasises the occurrence of a clear segmentation of regional housing markets in the USA indicating the existence of club convergence [Montañés, Olmos 2013].

The British market research carried out by MacDonald and Taylor has not confirmed the hypothesis assuming that regional markets strive to achieve long-term equilibrium [MacDonald, Taylor 1993]. However, the results obtained by Holmes and Grimes point to the weak long-term convergence of property prices in regional markets [Holmes, Grimes 2008]. Moreover, the analysis conducted at the level of local markets suggests that real estate prices are experiencing club convergence which is determined to a large extent by location factors, household incomes or population density of the analysed territorial units [Holmes, Otero, Panagiotidis 2019].

Publications devoted to China's housing markets do not provide evidence of regional price convergence [Zhang, Morley 2014]. According to the obtained results, there is no single common mechanism of price changes in regional markets. This does not, however, preclude club convergence [Lin et al. 2015].

Price convergence has been the subject of research also in many other markets, including: the Australian market [Ma, Liu 2015], the Indian market [Aye, Goswami, Gupta 2013], the Spanish market [Blanco, Martin, Vazquez 2015], the French market [Holmes, Otero, Panagiotidis 2017], the Polish market [Gnat 2016; Dittmann 2014; Żelazowski 2019], or the South African market [Das, Gupta, Kaya 2010]. A detailed review of the literature on convergence of housing markets is presented in Table 5.1.

Table 5.1. A review of the literature on issues related to convergence of housing markets

Publication	Type of convergence	Subject of research	Research method	Results
1	2	3	4	5
Montañés, Olmos [2013]	Convergence of regional house prices	19 MSA USA	The Phillips and Sul clustering algorithm	Club convergence confirmed
Nissan, Payne [2013]	Convergence of regional house prices	50 States in USA	F-Test for Equality of Two Variances, Analysis of variance (ANOVA)	Convergence confirmed only for selected States
Hiebert, Roma [2010]	Convergence of relative house prices	Germany, Italy, France, Spain, USA	Panel unit root tests	Limited evidence of long-run convergence in city-level house prices for the euro area or the US
Ma, Liu [2015]	Convergence of regional house prices	Australian capital cities	A spatio-temporal model	Convergence confirmed for selected cities (Sydney, Brisbane, Canberra, Melbourne and Perth)
Lin et al. [2015]	Convergence of regional house prices	Chinese regions and cities	A nonlinear time varying factor model	Weak club convergence confirmed, no single common convergence factor for regional markets

Table 5.1 (cont.)

1	2	3	4	5
Zhang, Morley [2014]	Convergence of regional house prices	35 Chinese cities and municipalities	Panel unit root tests	Little evidence of any convergence across China's regional house prices
Aye, Goswami, Gupta [2013]	Convergence of metropolitan house prices	15 metropolitan cities in India	Im, Pesaran and Shin panel unit root test	Price convergence not confirmed
Das, Gupta, Kaya [2010]	Convergence of metropolitan house prices	5 major metropolitan areas of South Africa	Panel unit root tests	Strong evidence for price convergence
Abbott, De Vita [2013]	Convergence of regional house prices	12 regions of the UK	Panel unit root tests	No evidence in support of overall convergence, sporadic events of club convergence
Montagnoli, Nagayasu [2015]	Convergence of regional house prices	12 regions of the UK	The Phillips and Sul clustering algorithm	Four convergence clubs identified
Holmes [2007]	Convergence of regional house prices	13 regions of the UK	Unit root testing within a seemingly unrelated regression framework	The majority of the thirteen regions exhibit long-run convergence
Holmes, Otero, Panagiotidis [2019]	Convergence of local house prices	348 England and Wales local authorities	The Phillips and Sul clustering algorithm	Multiple convergence clubs identified, UK house price clustering determined by location of investigated entities and type of housing
Holmes, Otero, Panagiotidis [2017]	Convergence of local house prices	20 Paris districts	Unit root testing of pair-wise house prices	In majority of investigated pair-wise prices convergence confirmed

1	2	3	4	5
Blanco, Martin, Vazquez [2015]	Convergence of regional house prices	Spanish regions	The Phillips and Sul clustering algorithm	Regional house prices do not converge to a common trend, four clubs exist that converge to different house price levels
Dittmann [2014]	Gamma convergence of regional prices	16 Polish voivodships	Kendall's coefficient of concordance (W).	Gamma convergence not confirmed
Żelazowski [2019]	Convergence of regional house prices	16 Polish voivodships	Unit root testing within a seemingly unrelated regression framework	Price convergence confirmed for 7 regional markets

Source: own elaboration.

Apart from research on price convergence, a research trend encompassing studies of convergence of widely understood housing systems has also been initiated in the literature. Changes in the ownership structure in housing markets, the evolution of their institutional environment, processes of convergence and divergence of national housing policies or housing sector financing systems are, among others, the subject of the analysis in this area [Governa, Saccomani 2010; Chiu 2008]. The conducted research, however, does not provide an unambiguous picture of changes occurring in domestic and regional housing markets.

5.2. Convergence processes in housing markets – empirical verification

5.2.1. The aim and scope of research

Housing markets are usually characterised by a distinct spatial segmentation. In the literature, a broad overview of sources and mechanisms of diversification of housing markets can be found. This issue has been discussed, among others, in the works of Van Nieuwerburgh and Weill [2010], Galati and Teppa [2010], as well as Murphy and Muelbauer [1994].

In the process of integration of European economies, however, the desire to unify housing markets has emerged. Two groups of factors have a major impact on the analysed processes:

1. Internal factors of a regional and national nature connected above all with history-related determinants of functioning of housing markets, the priorities of housing policy, as well as the economic potential and investment attractiveness of the region and the country.
2. External factors including socio-economic processes on an international scale. Their source is the progressive integration of European economies and the accompanying free movement of capital, migration of human resources, as well as unification of cultural patterns and lifestyle.

In the context of integrating European economies, the question about the direction of structural changes in the area of housing has become important. The research so far has focused mainly on price convergence of regional markets, thus not exhausting the potential of exploring housing markets. In addition, those studies were selective, limited to chosen European economies, and their results were often inconclusive.

Taking the above into account, it is justified to conduct an in-depth analysis of convergence processes in European housing markets, including the assessment of the scope and dynamics of convergence in the international and regional dimensions. Two basic areas of identification of housing convergence have been defined for the purpose of the study:

1. Price convergence in the framework of which prices of residential real estate were analysed.
2. Non-price convergence in the framework of which the following parameters were analysed: the level of household housing needs (in the quantitative and qualitative dimension), the purchasing power of households in the housing market and the institutional environment of the housing market.

The study encompassed the Member States of the European Union. The adopted horizon of analysis covering the years 2000–2017 allows us to take into account the period of formal EU membership of the countries of Central and Eastern Europe as well as the pre-accession years including the process of socio-economic adjustment of the candidate countries.

5.2.2. Research methodology

In the identification of convergence processes in housing markets, a two-stage procedure was used. In the first stage, prices of residential real estate were analysed, while in the second stage non-price indices were studied. The analysis was carried out both in the international and regional dimensions.

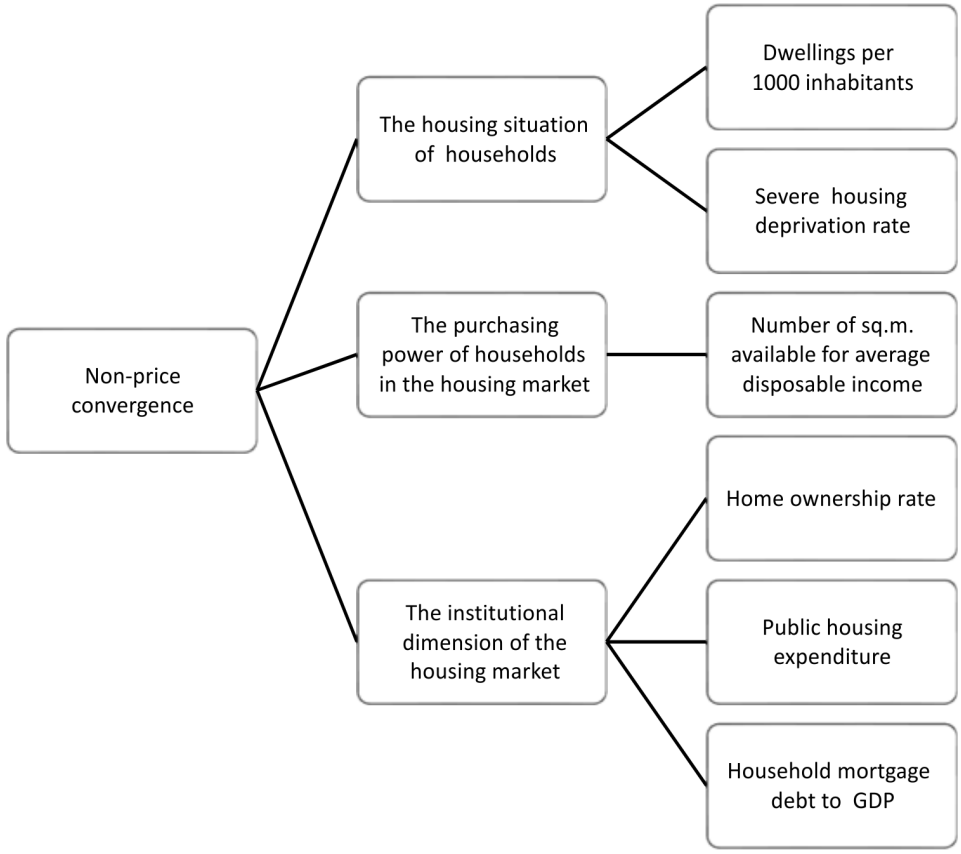
The verification of price convergence was carried out using the *log*(*t*) regression test [Philips, Sul 2007] detailed in the fourth chapter. The study includes average prices of residential properties from the secondary market in a logarithm form. In accordance with the assumptions of the test in question, a long-term tendency (trend) was extracted from the real estate price series. For this purpose, the high-pass filter (HP filter) proposed by R. Hodrick and E. Prescott was used [Hodrick, Prescott 1997]. Next, price convergence for all examined markets was verified on the basis of the estimated *log*(*t*) regression (eq. 4.23). In the absence of general price convergence of all markets, club convergence was tested according to the algorithm developed by Phillips and Sul (Section 4.2.3).

Non-price convergence was verified in several areas of key importance for the functioning of housing markets. The first area concerned the assessment of the scope of satisfying housing needs of households based on the quantitative and qualitative approach. In the assessment of the housing situation of households, the number of dwellings per 1000 inhabitants and the severe housing deprivation rate were applied. The second research area concerned the purchasing power of households in the housing market, measured by the number of sq.m. of floor area available for average monthly disposable income. Reference was also made to the institutional dimension of housing markets by including three indices: the home ownership rate (reflecting in a simplified form the ownership structure of the housing stock), the index of expenditure on public housing per 1000 inhabitants (defining the scope of public intervention in the housing sector) and the household mortgage debt to GDP ratio (as a measure of the mortgage market development level).[1] The scope of identification of non-price convergence is shown in Graph 5.1.

Non-price convergence was verified taking into account three basic variables: beta-, sigma- and gamma-convergence.[2] The essence and detailed methodology of their identification are presented in the fourth chapter. In the chapter, the occurrence of beta-convergence was verified using the (eq. 4.1) model. A positive and statistically significant convergence coefficient (β) confirms the occurrence of the convergence phenomenon in the examined markets. On the basis of the estimated beta coefficients, half-life statistics were determined, defining the time horizon within which the differences between the markets will be reduced by half (eq. 4.4).

1 Detailed information on housing indices included in the study and data sources is presented in Appendix 1.

2 The use of alternative methods for identifying non-price convergence, including relative convergence, resulted from shorter series of diagnostic variables (18 annual observations for 2000–2017).



Graph 5.1. Areas of identification of non-price convergence in housing markets
Source: own elaboration.

Sigma-convergence identification was carried out using the coefficient of variation. The successive decline in the diversity of markets in relation to the examined coefficient of variation confirmed the occurrence of sigma-convergence. The formal basis for the conclusion of the occurrence of sigma-convergence was the test of the significance of the trend estimated for the selected measure of variability (eq. 4.14). A statistically significant and negative parameter $\propto_1$ was an indication of the occurrence of sigma-convergence.

In the process of inferring about the occurrence of gamma-convergence, Kendall's coefficient of concordance was used (eq. 4.24). The verification of the hypothesis assuming the occurrence of gamma-convergence was carried out on the basis of chi-square statistic (eq. 4.25). In accordance with the test procedure, gamma-convergence occurs when the empirical value of chi-square statistic is lower than the theoretical value (for n–1 degrees of freedom and the significance level α). Otherwise, gamma-convergence cannot be confirmed.

5.2.3. Price convergence of housing markets

5.2.3.1. International dimension

The verification of price convergence in the international dimension was carried out for 14 European economies[3] using the logarithms of average housing prices expressed in EUR per sq.m. The analysis is based on quarterly data for the years 2000–2017 (72 observations).

In the first stage, price convergence in all analysed housing markets was verified. *Log*(*t*) regression was estimated with omission of 25% of the first observations in the price series (18 observations). The empirical value of t-statistic for the *log*(*t*) regression coefficient that amounted to –4.089 was lower than the critical value (–1.65), which allowed us to reject the hypothesis of the occurrence of general price convergence (see Tab. 5.2). The obtained results indicate that the price diversification in the examined markets shows no tendency to decline with time.

Table 5.2. Results of estimation of *log*(*t*) regression for 14 housing markets

Variable	Coeff	Standard error	T-stat*
log(*t*)	–0.1419	0.0347	–4.0894

* critical value (–1,65)
Source: own elaboration.

In the next stage of the research procedure, the occurrence of club convergence was verified with the use of the object clustering algorithm described by Phillips and Sul. Table 5.3 presents results of club convergence analysis.

Table 5.3. Results of estimation of *log*(*t*) regression for the identified price convergence clubs

Club	Coeff *log*(*t*)	T-stat*
Club 1	0.320	11.729
Club 2	0.123	11.504

* critical value (–1,65)
Source: own elaboration.

3 Belgium, Bulgaria, Finland, France, Germany, Greece, Italy, Ireland, the Netherlands, Poland, Portugal, Slovakia, Spain, the UK. The analysis was limited to the above-mentioned markets due to the limited availability of data on average housing prices per sq m. of usable area in the secondary market.

Two clubs were identified in which average prices of real estate exhibited a statistically significant decline in diversity within the analysed time horizon. The first club included the following housing markets: Belgium, Finland, France, Germany, Ireland, Italy, the Netherlands, Poland, Slovakia, and the UK (10 markets). The other club included housing markets of Bulgaria, Greece, Portugal and Spain (4 markets). Long-term trends of changes in real estate prices in individual clubs are presented in Figure 5.1.

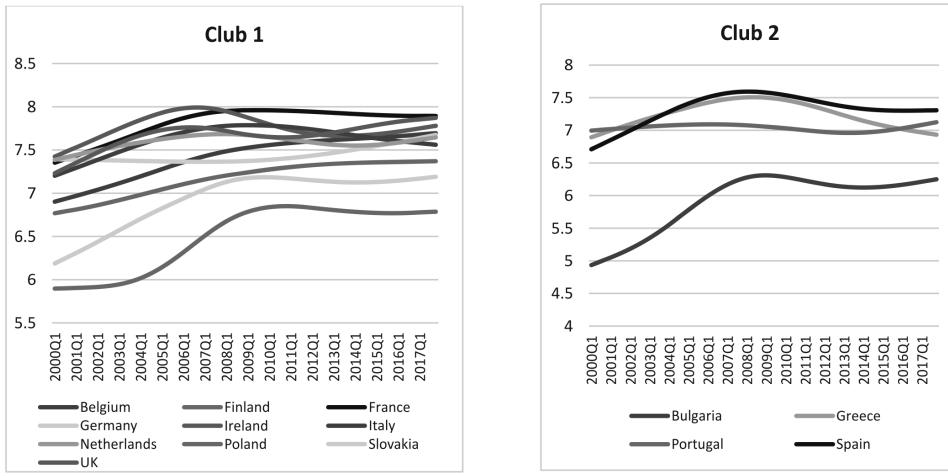


Figure 5.1. Long-term changes in real estate prices in the identified convergence clubs
Source: own elaboration.

Changes in price diversification within particular clubs did not have a uniform character. In the case of Club 1, the decline in price diversification occurred mainly in the years 2005–2010, while in Club 2 price diversification showed a downward trend over the whole horizon of analysis. In addition, some spatial dependencies can be noted in the identified clubs. Club 2 consists mainly of Southern European countries, while Club 1 covers mostly the countries of Western and Central Europe.

5.2.3.2. Regional dimension

Price convergence in the regional dimension was tested for 6 European economies (Bulgaria, the Netherlands, Poland, Slovakia, Spain and the UK). Logarithms of series of average prices of residential real estate from the secondary market (quarterly data from the years 2000–2017) were the subject of analysis. As in the case of

international convergence, first the existence of price convergence in all regional markets was verified for each country, and in the case of its lack, club convergence was identified.

The tests carried out did not confirm general convergence of all regional markets in the individual economies (see Tab. 5.4). The empirical values of t-statistic obtained on the basis of estimated *log*(*t*) regressions were clearly lower than the critical value (–1.65). This indicates a noticeable segmentation of markets, the important role of regional factors in shaping their development and their weak tendency to achieve common long-term equilibrium.

Table 5.4. Results of estimation of *log*(*t*) regression for regional housing markets

Country	Coeff *log*(*t*)	SE	T-stat*
Bulgaria	–0.2095	0.0231	–9.0735
the Netherlands	–0.6502	0.0302	–21.5190
Poland	–0.2228	0.0226	–9.8503
Slovakia	–0.4319	0.0083	–51.8349
Spain	–0.7321	0.0166	–44.2165
the UK	–1.7095	0.1735	–9.8557

* critical value (–1.65)
Source: own elaboration.

However, the conducted in-depth analysis allowed us to distinguish groups of housing markets in individual countries where price diversification showed a downward trend. The number of identified price convergence clubs ranged from 1 to 4. In selected economies, there were also cases of regional markets which, in accordance with the adopted methodology, were not classified into any of the groups experiencing price convergence. Those were markets with a clearly different long-term path of price changes compared to other regions. In the UK market, the regions included: East Midlands; East of England; Greater London; South East; South West; West Midlands, in the Spanish market: Asturias, Castilla La Mancha as well as Murcia, in the Slovak market: Bratislava, Kosice, Nitra, Trencin, while in the case of Poland: the Mazowieckie housing market. The detailed classification of regional markets with club convergence is presented in Table 5.5.

Table 5.5. Club convergence of regional housing markets

Country	Convergence clubs	Coeff *log*(*t*)	T-stat*
1	2	3	4
Bulgaria	Club 1 (14): Burgas; Dobrich; Haskovo; Lovech; Pazardzhik; Plovdiv; Razgrad; Ruse; Shumen; Silistra; Sofia; Sofiastolitsa; Stara Zagora; Varna	0.1313	2.9024
	Club 2 (12): Blagoevgrad; Kardzhali; Kyustendil; Montana; Pernik; Pleven; Sliven; Smolyan; Targovishte; Veliko Tarnovo; Vidin; Yambol	0.122	2.080
	Club 3 (2): Gabrovo; Vratsa	2.477	1.444
the Netherlands	Club 1 (2): Noord Holland; Utrecht	0.173	0.393
	Club 2 (5): Gelderland; Noord Brabant; Overijssel; Zeeland; Zuid Holland	0.082	5.399
	Club 3 (3): Drenthe; Flevoland; Limburg	0.395	1.698
	Club 4 (2): Friesland; Groningen	0.676	18.566
Poland	Club 1 (6): Lubelskie; Małopolskie; Podkarpackie; Podlaskie; Pomorskie; Wielkopolskie	0.043	2.214
	Club 2 (9): Dolnośląskie; Kujawsko-Pomorskie; Lubuskie; Łódzkie; Opolskie; Śląskie; Świętokrzyskie; Warmińsko-Mazurskie; Zachodniopomorskie	0.212	3.871
	Non-convergent Group 3 (1): Mazowieckie	–	–
Slovakia	Club 1 (4): Banska Bystrica; Presov; Trnava; Zilina	0.631	4.264
	Non-convergent Group 2 (4): Bratislava; Kosice; Nitra; Trencin	–0.471	–43.188
Spain	Club 1 (6): Balears; Cantabria; Cataluna; Ceuta y Melilla; Madrid Comunidad; Paisvasco	0.082	1.371
	Club 2 (9): Andalucia; Aragon; Canarias; Castilla y Leon; Comunidad Valenciana; Extremadura; Galicia; Navarra; Rioja	0.188	4.645
	Non-convergent Group 3 (3): Asturias; Castilla La Mancha; Murcia	–1.927	–11.504

1	2	3	4
the UK	Club 1 (4): North West; Scotland; Wales; Yorkshire and the Humber	1.500	6.378
	Club 2 (2): North East; Northern Ireland	3.770	2.494
	Non-convergent Group 3 (6): East Midlands; East of England; Greater London; South East; South West; West Midlands	–1.632	–19.770

* critical value (–1.65)
Source: own elaboration.

5.2.4. Non-price convergence of housing markets

5.2.4.1. International dimension

In the international dimension, non-price convergence was tested for all 6 indices characterised in Section 5.2.2. The variable number of national markets analysed in particular research areas resulted from the availability of statistical data. The research horizon covered the years 2000–2017. In order to more accurately characterise the dynamics of convergence of housing markets, the basic period of analysis was additionally divided into two sub-periods: the pre-crisis period (2000–2007) and the post-crisis period (2008–2017). This allowed us to verify in the basic form whether the change in macroeconomic conditions had an impact on the course of housing markets convergence.

The results of model estimations (4.1) were the basis for concluding about the occurrence of beta-convergence. For all the diagnostic indicators, the regression coefficients were negative. With the exception of public housing expenditure, they were also statistically significant (see Fig. 5.2 and Tab. 5.6). Strong beta-convergence processes were diagnosed in the area of household mortgage debt (the convergence coefficient of 6.47%) and the home ownership rate (the convergence coefficient of 4.09%). Significantly, the confirmed catching-up effect showed variability over time. In the years of economic upturn (2000–2007), beta-convergence was characterised by higher dynamics. It is particularly visible for the household purchasing power index (the convergence coefficient of 10.5%) and the mortgage debt to GDP ratio (the convergence coefficient of 12.18%). In the years 2008–2017, the dynamics of beta-convergence for most of the diagnostic variables declined significantly.

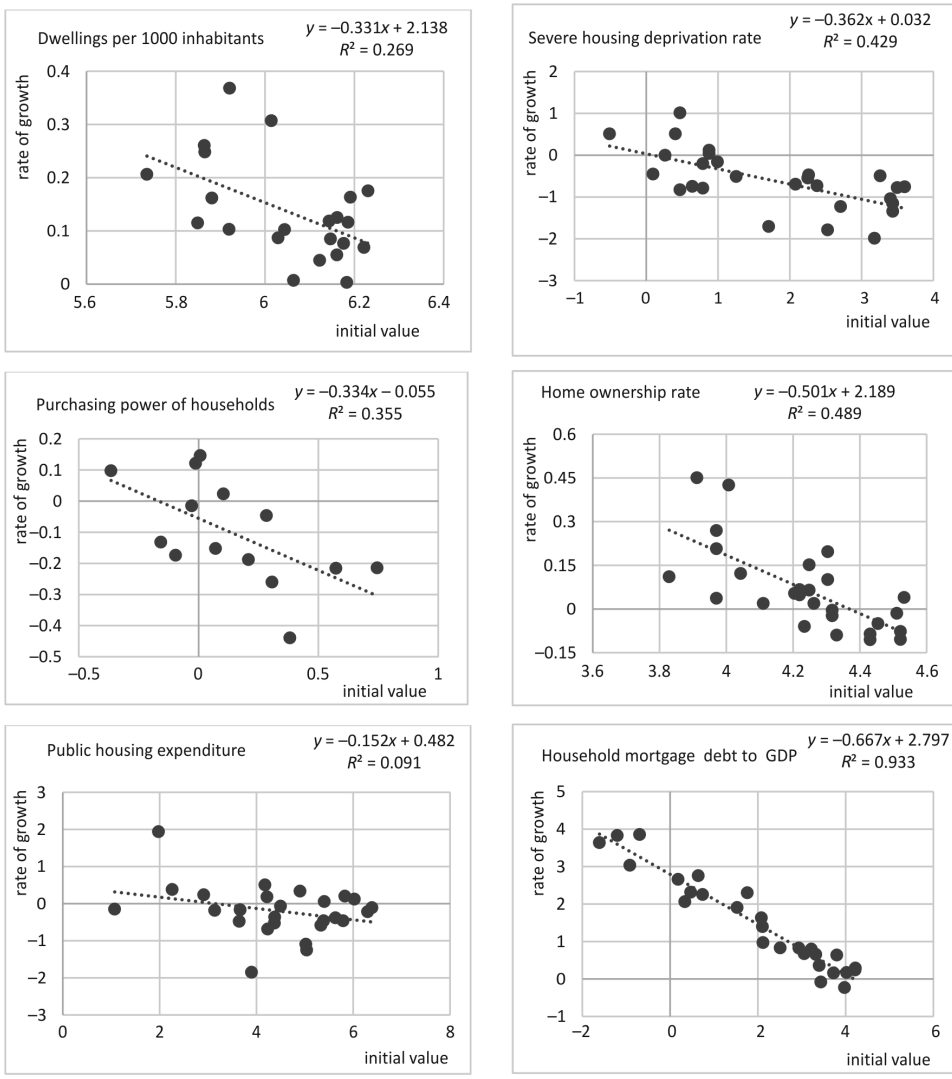


Figure 5.2. Identification of beta-convergence in European housing markets (2000–2017)
Source: own elaboration.

Table 5.6. Results of beta-convergence estimation

Variable		Results of OLS estimation		
		2000–2017	**2000–2007**	**2008–2017**
1	2	3	4	5
Dwellings per 1000 inhabitants	Const. (p-value)	2.138 (0.009)	1.124 (0.015)	0.830 (0.217)
	b coef. (p-value)	**–0.331** (0.013)	**–0.173** (0.022)	–0.127 (0.245)
	R^2	0.269	0.235	0.067
	SEE	0.082	0.047	0.062
	Beta	2.36%	2.72%	1.51%
	Half-life	20.34	25.53	45.97
Severe housing depravation rate*	Const. (p-value)	0.032 (0.858)	–0.140 (0.239)	0.129 (0.330)
	b coef. (p-value)	**–0.362** (0.000)	–0.077 (0.165)	**–0.294** (0.000)
	R^2	0.429	0.075	0.421
	SEE	0.543	0.352	0.436
	Beta	3.21%	2.01%	3.88%
	Half-life	21.58	34.42	17.89
Purchasing power of households in the housing market	Const. (p-value)	–0.055 (0.207)	–0.213 (0.009)	0.121 (0.082)
	b coef. (p-value)	**–0.334** (0.024)	**–0.508** (0.036)	–0.440 (0.084)
	R^2	0.355	0.317	0.229
	SEE	0.138	0.230	0.204
	Beta	2.39%	10.14%	6.45%
	Half-life	28.99	6.84	10.75
Home ownership rate	Const. (p-value)	2.189 (0.000)	1.755 (0.000)	0.380 (0.337)
	b coef. (p-value)	**–0.501** (0.000)	**–0.395** (0.000)	–0.092 (0.316)
	R^2	0.489	0.575	0.040
	SEE	0.106	0.070	0.066
	Beta	4.09%	7.18%	1.07%
	Half-life	16.94	9.655	64.71

Table 5.6 (cont.)

1	2	3	4	5
Public housing expenditure	Const. (p-value)	0.482 (0.299)	0.584 (0.059)	–0.388 (0.386)
	b coef. (p-value)	–0.153 (0.133)	–0.118 (0.076)	0.015 (0.873)
	R^2	0.091	0.125	0.001
	SEE	0.668	0.434	0.556
	Beta	0.97%	1.80%	–
	Half-life	71.21	38.54	–
Household mortgage debt to GDP	Const. (p-value)	2.797 (0.000)	2.466 (0.000)	1.051 (0.003)
	b coef. (p-value)	**–0.667** (0.000)	**–0.574** (0.000)	**–0.287** (0.004)
	R^2	0.933	0.911	0.281
	SEE	0.329	0.330	0.377
	Beta	6.47%	12.18%	3.76%
	Half-life	10.71	5.69	18.43

* data from years 2003–2007
Source: own elaboration.

The occurrence of beta-convergence is a prerequisite for the occurrence of another type of convergence – sigma-convergence. The obtained results confirm the appropriateness of both processes for the adopted diagnostic variables. A statistically significant downward trend in the coefficients of variation was obtained for all the indices except for public housing expenditure. In the years 2006–2008, this expenditure also showed higher than average long-term variability. This probably indicates a different approach of public entities to intervention spending in the housing sphere in the indicated years of economic crisis. Cross-sectional variability of the other indices was characterised by stronger downward dynamics in the years 2000–2007 (see Fig. 5.3 and Tab. 5.7).

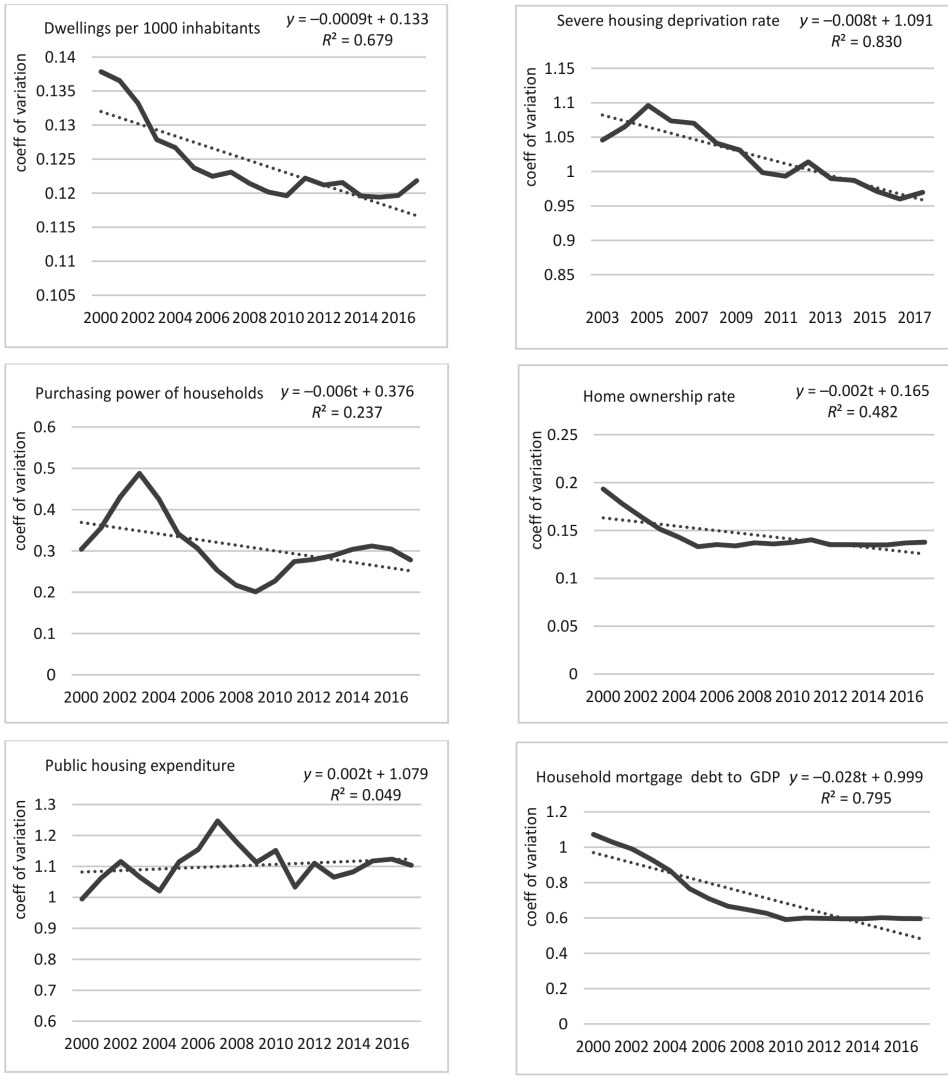


Figure 5.3. Identification of sigma-convergence in European housing markets (2000–2017)
Source: own elaboration.

Table 5.7. Results of sigma-convergence estimation

Variable		Results of OLS estimation		
		2000–2017	**2000–2007**	**2008–2017**
Dwellings per 1000 inhabitants	Const. (p-value)	0.133 (0.000)	0.140 (0.000)	0.121 (0.000)
	α_1 coef. (p-value)	**–0.0009** (0.000)	**–0.0024** (0.000)	–0.0001 (0.688)
	R^2	0.679	0.929	0.021
	SEE	0.003	0.002	0.001
Severe housing depravation rate*	Const. (p-value)	1.091 (0.000)	1.053 (0.000)	1.039 (0.000)
	α_1 coef. (p-value)	**–0.0088** (0.000)	0.0057 (0.392)	**–0.0079** (0.000)
	R^2	0.831	0.249	0.834
	SEE	0.018	0.018	0.011
Purchasing power of households in the housing market	Const. (p-value)	0.376 (0.000)	0.413 (0.000)	0.209 (0.000)
	α_1 coef. (p-value)	**–0.0069** (0.040)	–0.011 (0.405)	0.0109 (0.002)
	R^2	0.238	0.118	0.702
	SEE	0.068	0.080	0.023
Home ownership rate	Const. (p-value)	0.165 (0.000)	0.193 (0.000)	0.137 (0.000)
	α_1 coef. (p-value)	**–0.0022** (0.001)	**–0.0087** (0.000)	**–0.0001** (0.615)
	R^2	0.483	0.898	0.033
	SEE	0.013	0.008	0.002
Public housing expenditure	Const. (p-value)	1.080 (0.000)	0.981 (0.000)	1.130 (0.000)
	α_1 coef. (p-value)	0.0045 (0.377)	0.0259 (0.019)	–0.0040 (0.411)
	R^2	0.049	0.626	0.086
	SEE	0.060	0.053	0.042
Household mortgage debt to GDP	Const. (p-value)	0.999 (0.000)	1.157 (0.000)	0.626 (0.000)
	α_1 coef. (p-value)	**–0.0286** (0.000)	**–0.0617** (0.000)	**–0.0038** (0.045)
	R^2	0.796	0.986	0.413
	SEE	0.079	0.020	0.015

***** data from years 2003–2007
Source: own elaboration.

The conducted study did not confirm the general tendency of the occurrence of gamma-convergence in the national housing markets (Fig. 5.4). A decline in the value of the coefficient of concordance below the critical value was observed only in the household purchasing power index (Tab. 5.8). However, it was of a periodic nature (in the years 2006–2016) and resulted to a large extent from strong fluctuations in real estate prices in individual markets. There is no confirmation

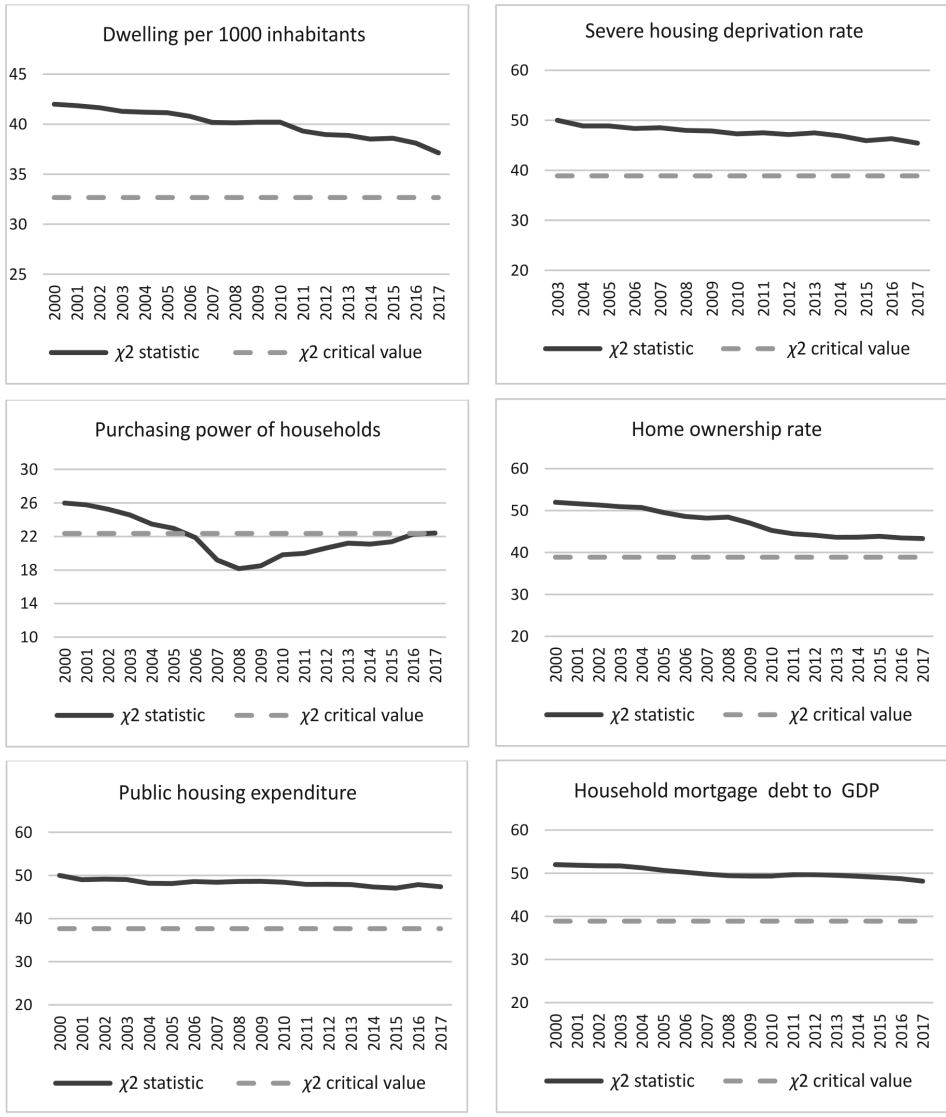


Figure 5.4. Identification of gamma-convergence in European housing markets (2000–2017)
Source: own elaboration.

Table 5.8. Results of gamma-convergence estimation

Year	Diagnostic variable											
	Dwellings per 1000 inhabitants[1]		**Severe housing deprivation rate[2]**		**Purchasing power of households in the housing market[3]**		**Home ownership rate[4]**		**Public housing expenditure[5]**		**Household mortgage debt to GDP[6]**	
	gamma	**emp. χ2**	**gamma**	**emp. χ2**	**gamma**	**emp. χ2**	**gamma**	**emp. χ2**	**gamma**	**emp. χ2**	**gamma**	**emp. χ2**
2000	1.000	42.00	–	–	1.000	26.00	1.000	52.00	1.000	50.00	1.000	52.00
2001	0.997	41.86	–	–	0.991	25.77	0.994	51.67	0.980	49.01	0.997	51.86
2002	0.992	41.64	–	–	0.971	25.26	0.987	51.33	0.983	49.15	0.995	51.71
2003	0.983	41.29	1.000	50.00	0.945	24.57	0.980	50.94	0.981	49.06	0.994	51.68
2004	0.981	41.19	0.977	48.86	0.903	23.49	0.976	50.73	0.964	48.19	0.986	51.27
2005	0.980	41.15	0.977	48.87	0.884	22.97	0.953	49.56	0.962	48.12	0.975	50.68
2006	0.971	40.79	0.967	48.37	0.842	21.89	0.935	48.62	0.972	48.60	0.966	50.25
2007	0.957	40.17	0.970	48.50	0.738	19.20	0.927	48.22	0.968	48.41	0.958	49.79
2008	0.955	40.13	0.959	47.97	0.699	18.17	0.932	48.44	0.972	48.60	0.951	49.43
2009	0.957	40.20	0.957	47.86	0.712	18.51	0.905	47.05	0.973	48.63	0.949	49.35
2010	0.957	40.20	0.946	47.28	0.763	19.83	0.871	45.27	0.968	48.41	0.949	49.33
2011	0.936	39.32	0.950	47.50	0.769	20.00	0.855	44.48	0.959	47.93	0.955	49.67
2012	0.928	38.96	0.943	47.16	0.793	20.63	0.849	44.13	0.959	47.93	0.954	49.62
2013	0.925	38.87	0.950	47.48	0.815	21.20	0.839	43.63	0.958	47.88	0.952	49.49
2014	0.917	38.51	0.938	46.89	0.811	21.09	0.839	43.65	0.947	47.33	0.948	49.32
2015	0.919	38.58	0.918	45.92	0.822	21.37	0.844	43.87	0.942	47.08	0.943	49.05
2016	0.907	38.11	0.926	46.32	0.857	22.29	0.836	43.49	0.957	47.86	0.938	48.76
2017	0.884	37.14	0.909	45.45	0.862	22.40	0.833	43.33	0.948	47.40	0.927	48.19

Critical values for the test χ2 are respectively: 1) 32.67; 2) 38.88; 3) 22.36; 4) 38.88; 5) 37,65; 6) 38.88
Source: own elaboration.

of statistically significant changes in the national market rankings prepared on the basis of the other housing indices. The lack of gamma-convergence confirms the differences prevailing in the functioning of the national housing markets over the period of 18 years.

5.2.4.2. Regional dimension

Two non-price indices were taken into account in the conducted comparative analysis of regional housing markets: the number of dwellings per 1000 inhabitants as well as the purchasing power of households measured by the number of sq.m. available for average disposable income.[4] Six European economies (Bulgaria, the Netherlands, Poland, Slovakia, Spain and the UK) were verified and their choice was dictated mainly by availability of statistical data from their regional housing markets. The methodology adopted in this part of the study was identical to the solutions used in the assessment of international convergence.

In each of the regional markets included in the analysis, a long-term trend of the growth in the housing stock was observed. The nature of those changes, however, was different from the processes observed internationally. The obtained results did not confirm the occurrence of the catch-up effect in the regional markets in the area of their housing stock (no beta-convergence). The estimated regression coefficients (eq 4.1) were positive and in most cases statistically insignificant (Fig. 5.5 and Tab. 5.9).

Among the analysed markets, the strongest regional variability in the context of existing housing stock per 1000 inhabitants was demonstrated by the markets of Bulgaria, Slovakia and Spain (the coefficients of variation above 10%), while the lowest by the markets of the Netherlands and the United Kingdom (the coefficients of variation below 5%). However, the phenomenon of deepening differences in the regional housing stock over the years was the common feature of the analysed countries (Fig. 5.6 and Tab. 5.10). Confirmed beta-divergence and sigma-divergence allow us to infer the spatial concentration of investment processes in the area of housing stock. New housing investments are undertaken in markets that offer investors attractive returns. Economically strong regions, despite relatively larger housing stock, remain attractive to investors. These trends are reflected in the scale of housing construction, and consequently, also in growing differences in regional housing resources.

4 The use of other indicators included in the international analysis was not possible due to the lack of available data.

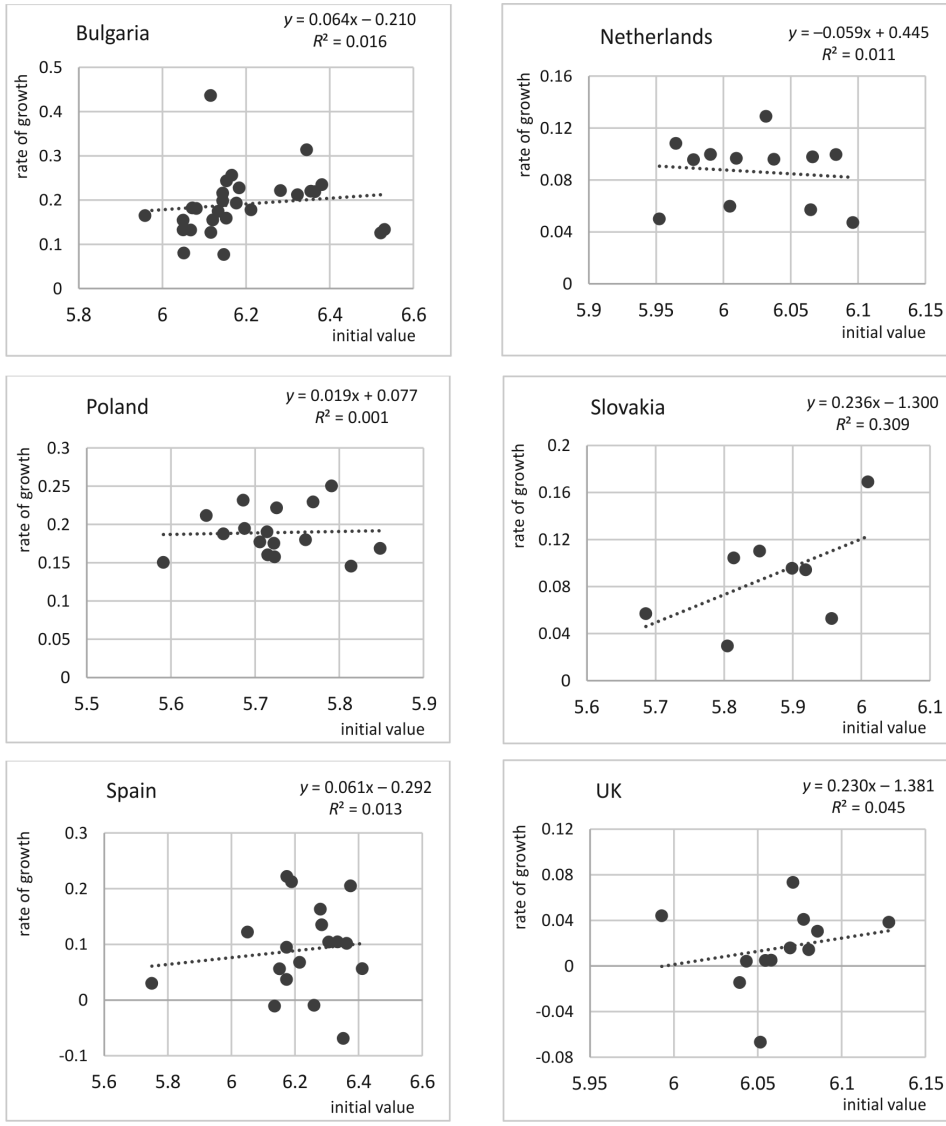


Figure 5.5. Identification of beta-convergence for the number of dwellings per 1000 inhabitants (2000–2017)
Source: own elaboration.

Table 5.9. Results of beta-convergence estimation for the number of dwellings per 1000 inhabitants

Economy	Results of OLS estimation			
		2000–2017	2000–2007	2008–2017
1	2	3	4	5
Bulgaria*	Const. (p-value) b coef. (p-value)	–0.210 (0.729) 0.065 (0.510)	–0.179 (0.280) 0.036 (0.181)	–0.205 (0.626) 0.054 (0.421)
	R^2	0.017	0.068	0.025
	SEE	0.072	0.020	0.052
	Beta	–	–	–
	Half-life	–	–	–
Netherlands	Const. (p-value) b coef. (p-value)	0.446 (0.676) –0.060 (0.736)	–0.272 (0.645) 0.050 (0.613)	0.449 (0.503) –0.065 (0.553)
	R^2	0.012	0.027	0.036
	SEE	0.027	0.015	0.018
	Beta	0.36%	–	0.75%
	Half-life	191.43	–	92.23
Poland	Const. (p-value) b coef. (p-value)	0.077 (0.104) 0.020 (0.151)	0.335 (0.519) –0.042 (0.641)	–0.397 (0.231) 0.083 (0.151)
	R^2	0.002	0.016	0.142
	SEE	0.033	0.022	0.014
	Beta	–	0.62%	–
	Half-life	–	112.53	–

Table 5.9 (cont.)

1	2	3	4	5
Slovakia**	Const. (p-value) b coef. (p-value)	–1.300 (0.176) 0.237 (0.152)	0.434 (0.320) –0.071 (0.339)	–1.821 (0.063) 0.322 (0.056)
	R^2	0.309	0.153	0.483
	SEE	0.039	0.018	0.034
	Beta	–	1.84%	–
	Half-life	–	37.65	–
Spain***	Const. (p-value) b coef. (p-value)	–0.2919 (0.723) 0.061 (0.643)	0.8056 (0.095) –0.122 (0.114)	–1.3662 (0.000) 0.224 (0.000)
	R^2	0.013	0.148	0.678
	SEE	0.082	0.046	0.023
	Beta	–	2.16%	–
	Half-life	–	32.02	–
UK	Const. (p-value) b coef. (p-value)	–1.3819 (0.512) 0.231 (0.507)	–0.8685 (0.165) 0.145 (0.160)	–1.330 (0.277) 0.219 (0.277)
	R^2	0.045	0.187	0.117
	SEE	0.036	0.010	0.024
	Beta	–	–	–
	Half-life	–	–	–

* data for 2003–2017; ** data only for 2001, 2005, 2011, 2017; *** data for 2001–2017
Source: own elaboration.

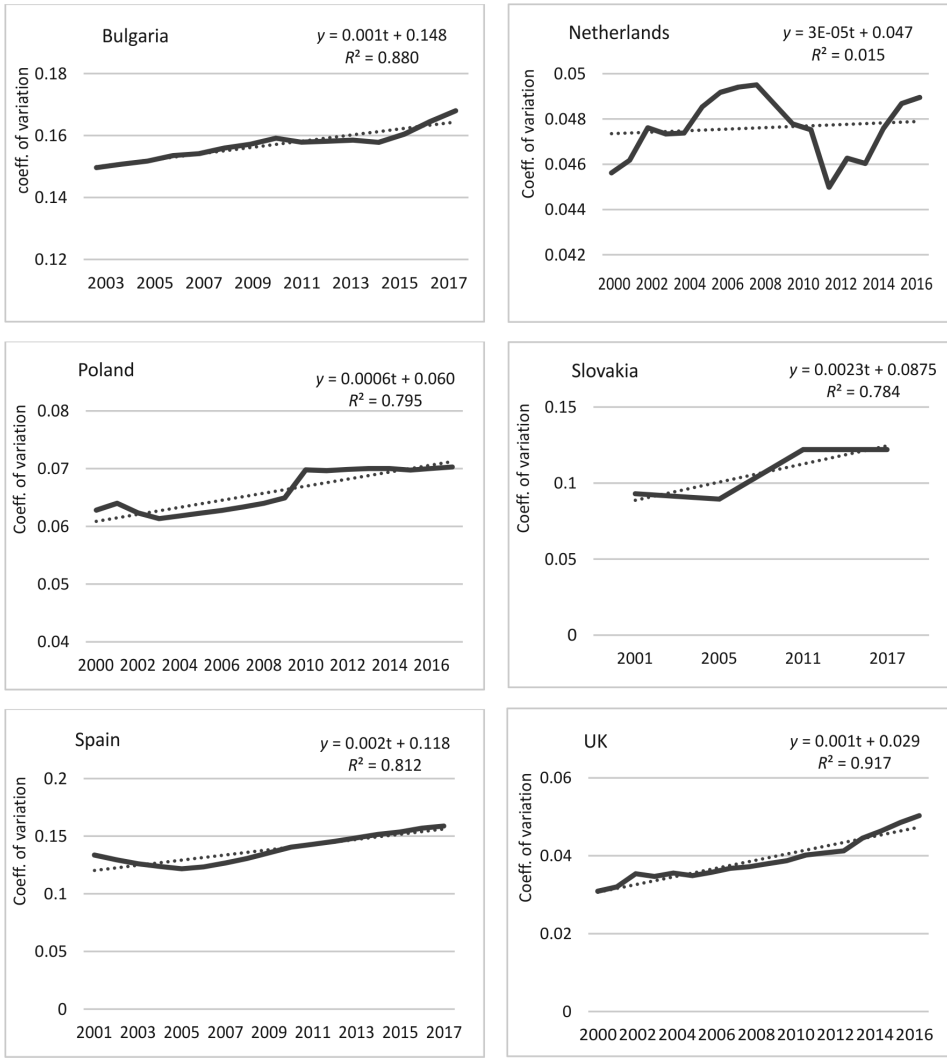


Figure 5.6. Identification of sigma-convergence for the number of dwellings per 1000 inhabitants
Source: own elaboration.

Table 5.10. Results of sigma-convergence estimation for the number of dwellings per 1000 inhabitants

Economy	Results of OLS estimation			
		2000–2017	2000–2007	2008–2017
1	2	3	4	5
Bulgaria*	Const. (p-value) α_1 coef. (p-value)	0.1488 (0.000) 0.0010 (0.000)	0.1484 (0.000) 0.0012 (0.000)	0.1542 (0.000) 0.0010 (0.000)
	R^2	0.880	0.984	0.675
	SEE	0.0018	0.0003	0.0022
Netherlands	Const. (p-value) α_1 coef. (p-value)	0.0473 (0.046) 0.00003 (0.623)	0.0453 (0.000) 0.0005 (0.000)	0.0479 (0.000) –0.00005 (0.754)
	R^2	0.015	0.924	0.013
	SEE	0.0014	0.0004	0.0015
Poland	Const. (p-value) α_1 coef. (p-value)	0.0602 (0.000) 0.0006 (0.000)	0.0627 (0.000) –0.00002 (0.870)	0.0657 (0.000) 0.0006 (0.015)
	R^2	0.795	0.005	0.546
	SEE	0.0017	0.0009	0.0017
Slovakia**	Const. (p-value) α_1 coef. (p-value)	0.0875 (0.010) 0.0023 (0.115)	–	–
	R^2	0.784	–	–
	SEE	0.0101	–	–

1	2	3	4	5
Spain***	Const. (p-value)	0.1181 (0.000)	0.1317 (0.001)	0.1299 (0.000)
	α_1 coef. (p-value)	0.0022 (0.066)	–0.0013 (0.080)	0.0030 (0.004)
	R^2	0.813	0.489	0.986
	SEE	0.0056	0.0032	0.0012
UK	Const. (p-value)	0.0297 (0.000)	0.0313 (0.000)	0.0345 (0.000)
	α_1 coef. (p-value)	0.00098 (0.219)	0.00071 (0.006)	0.0015 (0.000)
	R^2	0.917	0.745	0.952
	SEE	0.0016	0.0011	0.0011

* data for 2003–2017; ** data only for 2001, 2005, 2011, 2017; *** data for 2001–2017
Source: own elaboration.

The regional housing stock did not show any significant gamma-convergence tendencies. Disparities in the housing stock of the regions remained in the years 2000–2017 so permanent that the values of the rank coefficients did not fall below the critical values (Fig. 5.7 and Tab. 5.11). One must bear in mind the nature of the index (its inertia). Changes in the housing stock, due to the specificity of construction processes, are of a long-term nature, hence the adopted research horizon may be insufficient to change the position of the regions in the ranking of available housing stock.

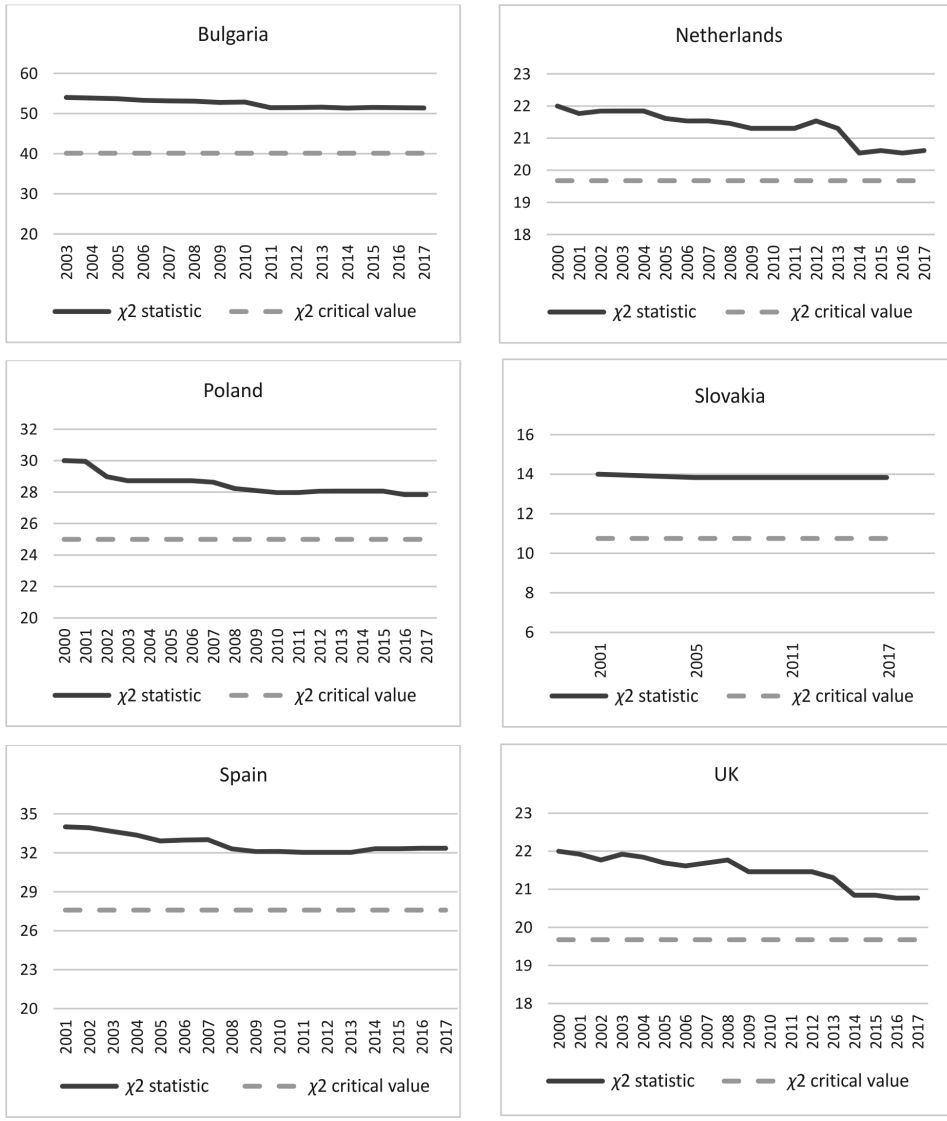


Figure 5.7. Identification of gamma-convergence for the number of dwellings per 1000 inhabitants
Source: own elaboration.

Table 5.11. Results of gamma-convergence estimation for the number of dwellings per 1000 inhabitants

Year	Dwellings per 1000 inhabitants											
	Bulgaria[1]		Netherlands[2]		Poland[3]		Slovakia[4]		Spain[5]		UK[6]	
	gamma	emp. $\chi 2$	gamma	emp. $\chi 2$	gamma	emp. $\chi 2$	gamma	emp. $\chi 2$	gamma	emp. $\chi 2$	gamma	emp. $\chi 2$
2000	–	–	1.000	22.00	1.000	30.00	–	–	–	–	1.000	20.00
2001	–	–	0.990	21.77	0.999	29.96	1.000	14.00	1.000	34.00	1.000	20.00
2002	–	–	0.993	21.85	0.966	28.99	–	–	0.977	33.23	1.000	20.00
2003	1.000	54.00	0.993	21.85	0.957	28.72	–	–	0.941	32.00	0.995	19.91
2004	0.998	53.87	0.993	21.85	0.957	28.72	–	–	0.905	30.77	0.982	19.64
2005	0.994	53.69	0.983	21.62	0.957	28.72	0.988	13.83	0.901	30.63	0.982	19.64
2006	0.987	53.31	0.979	21.54	0.957	28.72	–	–	0.880	29.93	0.982	19.64
2007	0.984	53.14	0.979	21.54	0.954	28.63	–	–	0.864	29.37	0.973	19.45
2008	0.983	53.10	0.976	21.46	0.941	28.24	–	–	0.888	30.18	0.977	19.55
2009	0.977	52.77	0.969	21.31	0.937	28.10	–	–	0.899	30.56	0.995	19.91
2010	0.979	52.88	0.969	21.31	0.932	27.97	–	–	0.878	29.86	0.995	19.91
2011	0.953	51.44	0.969	21.31	0.932	27.97	0.988	13.83	0.872	29.65	1.000	20.00
2012	0.953	51.47	0.979	21.54	0.935	28.06	–	–	0.856	29.09	0.995	19.91
2013	0.955	51.59	0.969	21.31	0.935	28.06	–	–	0.830	28.21	1.000	20.00
2014	0.951	51.37	0.934	20.54	0.935	28.06	–	–	0.842	28.63	0.995	19.91
2015	0.954	51.53	0.937	20.62	0.935	28.06	–	–	0.846	28.77	0.991	19.82
2016	0.953	51.44	0.934	20.54	0.928	27.84	–	–	0.843	28.67	0.991	19.82
2017	0.952	51.40	0.937	20.62	0.928	27.84	0.988	13.83	0.847	28.81	0.977	19.55

Critical values for the test $\chi 2$ are respectively: 1) 40,11; 2) 19,68; 3) 25,00; 4) 10,75; 5) 27,59; 6) 19,68
Source: own elaboration.

In the case of the household purchasing power index, the direction of changes taking place in the regional markets is not unambiguous. Beta-convergence was confirmed only for the regional markets of Bulgaria and the Netherlands. The rate of convergence in both cases was at a similar level of 5.5% per annum. The changes in the purchasing power in the UK markets show a completely different picture, as they indicate the existence of beta-divergence. In the other economies, the estimated regression coefficients were statistically insignificant (see Fig. 5.8 and Tab. 5.12).

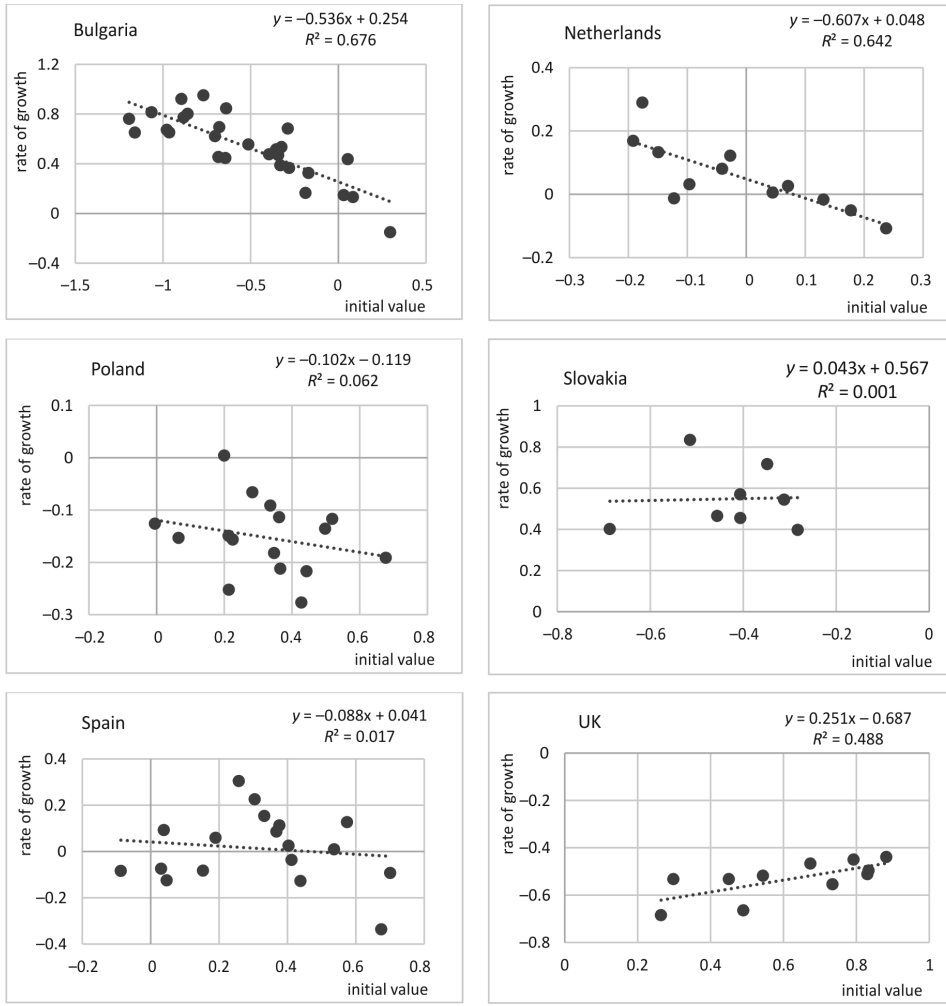


Figure 5.8. Identification of beta-convergence for the household purchasing power index
Source: own elaboration.

Table 5.12. Results of beta-convergence estimation for the household purchasing power index

Economy		Results of OLS estimation		
		2000–2017	**2000–2007**	**2008–2017**
1	2	3	4	5
Bulgaria*	Const. (p-value)	0.255 (0.000)	–0.631 (0.000)	0.692 (0.000)
	b coef. (p-value)	**–0.536** (0.000)	**–0.539** (0.000)	**–0.213** (0.050)
	R^2	0.676	0.545	0.140
	SEE	0.151	0.200	0.134
	Beta	5.48%	19.36%	2.66%
	Half-life	12.64	3.58	26.04
Netherlands	Const. (p-value)	0.048 (0.034)	–0.166 (0.000)	0.174 (0.000)
	b coef. (p-value)	**–0.608** (0.002)	**–0.540** (0.000)	–0.088 (0.663)
	R^2	0.642	0.798	0.020
	SEE	0.068	0.041	0.051
	Beta	5.50%	11.11%	1.02%
	Half-life	12.60	6.24	67.72
Poland	Const. (p-value)	–0.119 (0.008)	–0.410 (0.000)	0.323 (0.003)
	b coef. (p-value)	–0.102 (0.351)	–0.012 (0.916)	**–0.010** (0.908)
	R^2	0.062	0.001	0.001
	SEE	0.071	0.074	0.053
	Beta	0.63%	0.17%	0.11%
	Half-life	109.41	412.27	633.44

Table 5.12 (cont.)

1	2	3	4	5
Slovakia	Const. (p-value)	0.567 (0.041)	–0.001 (0.998)	0.690 (0.001)
	b coef. (p-value)	0.044 (0.932)	–0.124 (0.819)	0.208 (0.382)
	R^2	0.001	0.009	0.129
	SEE	0.169	0.177	0.091
	Beta	–	1.89%	–
	Half-life	–	36.65	–
Spain**	Const. (p-value)	0.042 (0.526)	–0.355 (0.000)	0.368 (0.000)
	b coef. (p-value)	–0.089 (0.599)	–0.175 (0.221)	0.017 (0.907)
	R^2	0.018	0.092	0.001
	SEE	0.154	0.128	0.129
	Beta	0.27%	7.31%	–
	Half-life	258.47	9.48	–
UK	Const. (p-value)	–0.687 (0.000)	–0.285 (0.000)	–0.135 (0.009)
	b coef. (p-value)	0.251 (0.017)	**–0.394** (0.000)	0.694 (0.009)
	R^2	0.488	0.787	0.554
	SEE	0.060	0.048	0.103
	Beta	–	7.15%	–
	Half-life	–	9.70	–

* data for 2003–2017; ** data for 2001–2017
Source: own elaboration.

A clear decline in the diversification of household purchasing power indices was noted for the regional markets with previously confirmed beta-convergence (Bulgaria and the Netherlands). It should also be noted that the 2000–2007 pre-crisis years were characterised by the strongest downward dynamics in this respect (see Fig. 5.9 and Tab. 5.13).

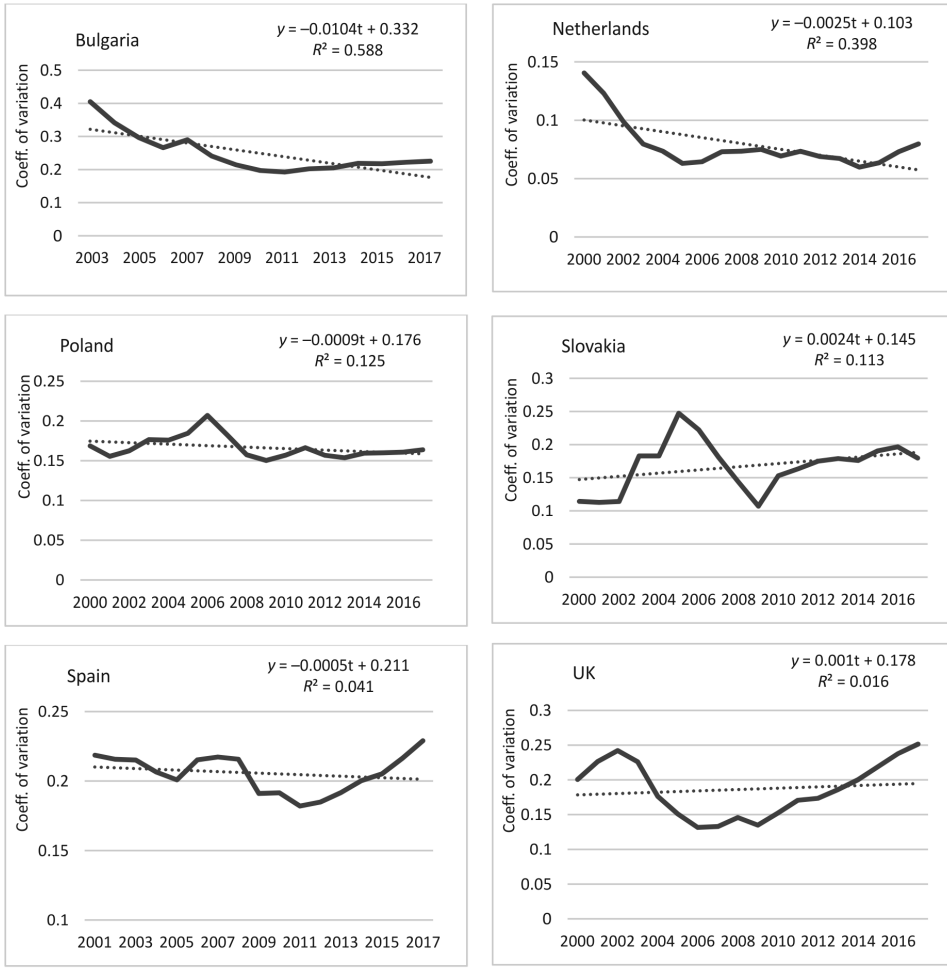


Figure 5.9. Identification of sigma-convergence for the household purchasing power index
Source: own elaboration.

Despite noticeable changes in the household purchasing power indices over the research time horizon caused mainly by price fluctuations in the regional markets, gamma-convergence was generally absent. Periodic decreases in the coefficients of concordance below their critical values in the Netherlands and Slovakia are the exceptions (see Fig. 5.10 and Tab. 5.14).

Table 5.13. Results of sigma-convergence estimation for the household purchasing index

Economy		Results of OSL estimation		
		2000–2017	**2000–2007**	**2008–2017**
Bulgaria*	Const. (p-value)	0.3324 (0.000)	0.4113 (0.007)	0.2104 (0.000)
	α_1 coef. (p-value)	**–0.0104** (0.001)	**–0.0304** (0.049)	0.0006 (0.734)
	R^2	0.588	0.774	0.015
	SEE	0.0404	0.0300	0.015
Netherlands	Const. (p-value)	0.1028 (0.000)	0.1366 (0.000)	0.0713 (0.000)
	α_1 coef. (p-value)	**–0.0025** (0.005)	**–0.0105** (0.003)	–0.00017 (0.809)
	R^2	0.398	0.797	0.008
	SEE	0.0170	0.0139	0.0062
Poland	Const. (p-value)	0.176 (0.000)	0.1542 (0.000)	0.1546 (0.000)
	α_1 coef. (p-value)	–0.0009 (0.150)	0.0050 (0.022)	0.0007 (0.163)
	R^2	0.125	0.608	0.228
	SEE	0.0136	0.0106	0.0043
Slovakia	Const. (p-value)	0.1449 (0.000)	0.0939 (0.012)	0.1269 (0.000)
	α_1 coef. (p-value)	0.0024 (0.172)	0.0168 (0.017)	0.0072 (0.003)
	R^2	0.113	0.638	0.682
	SEE	0.0372	0.0336	0.0158
Spain**	Const. (p-value)	0.2107 (0.000)	0.2154 (0.000)	0.1866 (0.000)
	α_1 coef. (p-value)	–0.0006 (0.435)	–0.0007 (0.634)	0.0026 (0.135)
	R^2	0.041	0.049	0.256
	SEE	0.0138	0.0069	0.0141
UK	Const. (p-value)	0.1775 (0.000)	0.2542 (0.000)	0.1169 (0.000)
	α_1 coef. (p-value)	0.00096 (0.614)	**–0.0152** (0.009)	0.0128 (0.000)
	R^2	0.016	0.703	0.960
	SEE	0.0413	0.0261	0.0084

* data for 2003–2017; ** data for 2001–2017
Source: own elaboration.

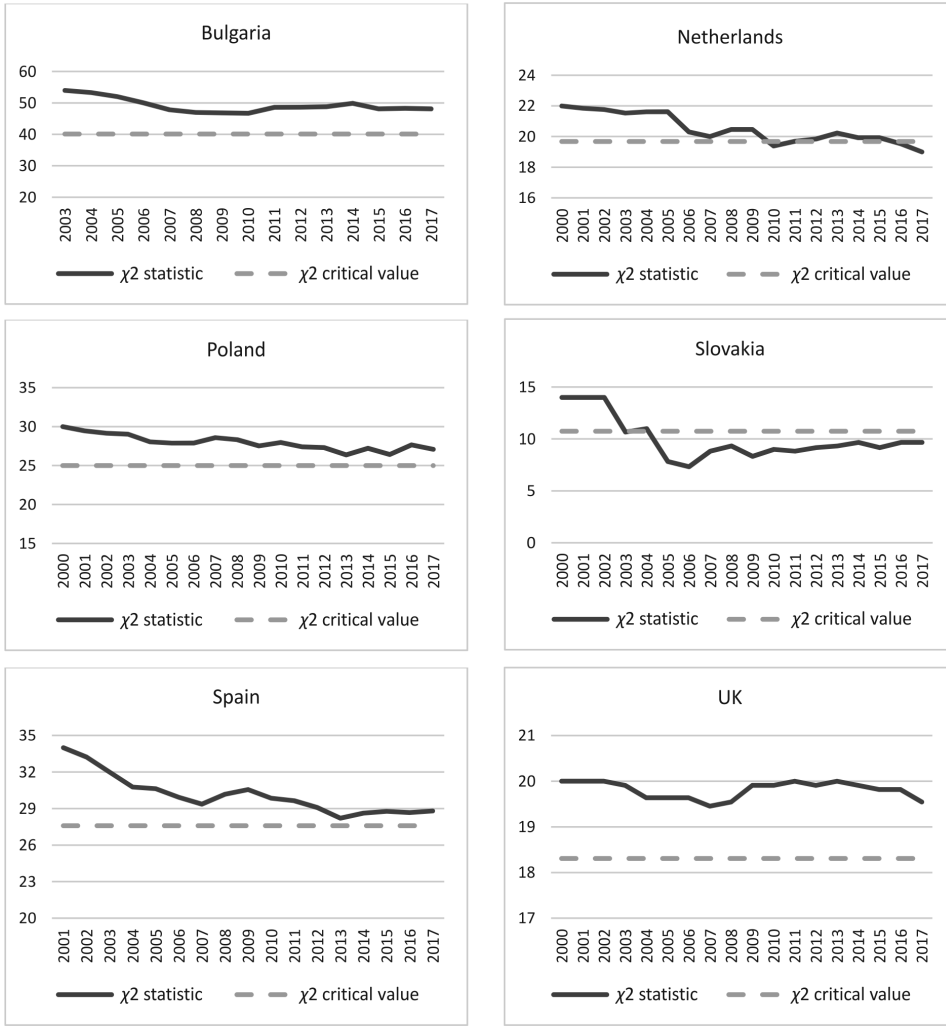


Figure 5.10. Identification of gamma-convergence for the household purchasing power index
Source: own elaboration.

Table 5.14. Results of gamma-convergence estimation for the household purchasing power index

Year	Household purchasing power											
	Bulgaria[1]		Netherlands[2]		Poland[3]		Slovakia[4]		Spain[5]		UK[6]	
	gamma	emp. $\chi 2$	gamma	emp. $\chi 2$	gamma	emp. $\chi 2$	gamma	emp. $\chi 2$	gamma	emp. $\chi 2$	gamma	emp. $\chi 2$
2000	–	–	1.000	22.00	1.000	30.00	1.000	14.00	–	–	1.000	20.00
2001	–	–	0.993	21.85	0.982	29.47	1.000	14.00	1.000	34.00	1.000	20.00
2002	–	–	0.990	21.77	0.972	29.16	1.000	14.00	0.977	33.23	1.000	20.00
2003	1.000	54.00	0.979	21.54	0.968	29.03	0.762	10.67	0.941	32.00	0.995	19.91
2004	0.987	53.31	0.983	21.62	0.935	28.06	0.786	11.00	0.905	30.77	0.982	19.64
2005	0.963	52.02	0.983	21.62	0.929	27.88	0.560	7.83	0.901	30.63	0.982	19.64
2006	0.927	50.05	0.923	20.31	0.929	27.88	0.524	7.33	0.880	29.93	0.982	19.64
2007	0.886	47.82	0.909	20.00	0.953	28.59	0.631	8.83	0.864	29.37	0.973	19.45
2008	0.870	46.98	0.930	20.46	0.944	28.32	0.667	9.33	0.888	30.18	0.977	19.55
2009	0.867	46.80	0.930	20.46	0.918	27.53	0.595	8.33	0.899	30.56	0.995	19.91
2010	0.865	46.71	0.881	19.38	0.932	27.97	0.643	9.00	0.878	29.86	0.995	19.91
2011	0.900	48.59	0.895	19.69	0.913	27.40	0.631	8.83	0.872	29.65	1.000	20.00
2012	0.901	48.65	0.902	19.85	0.910	27.31	0.655	9.17	0.856	29.09	0.995	19.91
2013	0.904	48.81	0.920	20.23	0.879	26.38	0.667	9.33	0.830	28.21	1.000	20.00
2014	0.924	49.89	0.906	19.92	0.907	27.22	0.690	9.67	0.842	28.63	0.995	19.91
2015	0.891	48.09	0.906	19.92	0.881	26.43	0.655	9.17	0.846	28.77	0.991	19.82
2016	0.894	48.27	0.888	19.54	0.922	27.66	0.690	9.67	0.843	28.67	0.991	19.82
2017	0.891	48.12	0.864	19.00	0.903	27.09	0.690	9.67	0.847	28.81	0.977	19.55

Critical values for the test $\chi 2$ are respectively: 1) 40,11; 2) 19,68; 3) 25,00; 4) 10,75; 5) 27,59; 6) 18,31
Source: own elaboration.

5.2.5. Conclusions

The results of the conducted research confirmed the occurrence of beta-convergence and sigma-convergence in the analysed national markets. However, their dynamics was variable over time. Stronger convergence trends in the studied housing markets occurred in the upward phase of the business cycle (2000–2007), much weaker in the years following the global economic crisis (2008–2017). Gamma-convergence was not confirmed in most of the indices included. The conducted tests did not confirm price convergence in the group of all the countries studied, though club convergence was identified.

The studied regional markets present a different picture of changes. Beta-divergence and sigma-divergence were identified with reference to the regional housing stock. This means that regions with relatively larger housing stock remained attractive to new housing ventures. Regional differences in the scale of housing construction translated into diversity of markets in terms of their housing stock increasing over time. Changes in the household purchasing power in the regional markets were not one-way changes. The decline in diversity of housing markets in this area was observed primarily in the years of increasing housing prices (2003–2008). In the remaining years, convergence was weak or absent. Similarly to the international analysis, the studied regional markets experienced price convergence only of a club nature.

The analysis of changes occurring in the studied national and regional housing markets has also allowed us to indicate characteristic trends. International convergence is not always in line with regional convergence. In some areas, the catching-up of new EU Member States to Western European housing standards is occurring through deepening differences among their regions (regional divergence). In addition, as the gap between the housing markets is decreasing, the dynamics of convergence processes is declining.

Part 3
Assessment of housing convergence and its effects

Chapter 6

Convergence of European housing markets in the context of economic convergence of the EU Member States

6.1. The process of integration of European economies

Data obtained as part of the Maddison Project[1] provide an interesting perspective on processes of economic convergence. The analysis of the data shows that the process of increasing the gap between the countries with the highest and the lowest GDP per capita has been prevalent worldwide over the last several hundred years [Kusideł 2013a, p. 137]. Economic divergence on a global scale is confirmed by Barro's works [1997, p. 318] (where analysis was conducted for 98 countries in the years 1960–1985), works by Kusideł [2013a, p. 139] (analysis carried out for 54 countries in the years 1950–2010), or the OECD report [Cingano 2014], where it was found that the inequality within OECD countries is the highest since the 1980s (analysis for OECD countries in the years 1985–2005).[2] However, the latest data show that diversification in the GDP level has been falling for some time – see Figure 6.1.

In the literature, one can find the view that the process of poorer countries catching up to richer ones among Western European countries has been going on since the late 19th century,[3] although the rate of convergence in the last 20 years has remained relatively low – below 2% per year.[4]

1 https://www.rug.nl/ggdc/historicaldevelopment/maddison/

2 In this report, an additional negative impact of the increase in income inequalities on economic growth was observed.

3 According to M. Ferry [2008, p. 32], this process stopped during World War II, in the 1970s, as well as in the years 1982–1986.

4 This is the result obtained by many researchers, in particular in the work of Sala-i-Martin, although there are opinions that this result is a statistical "artefact" – cf. Monfort [2008, p. 4].

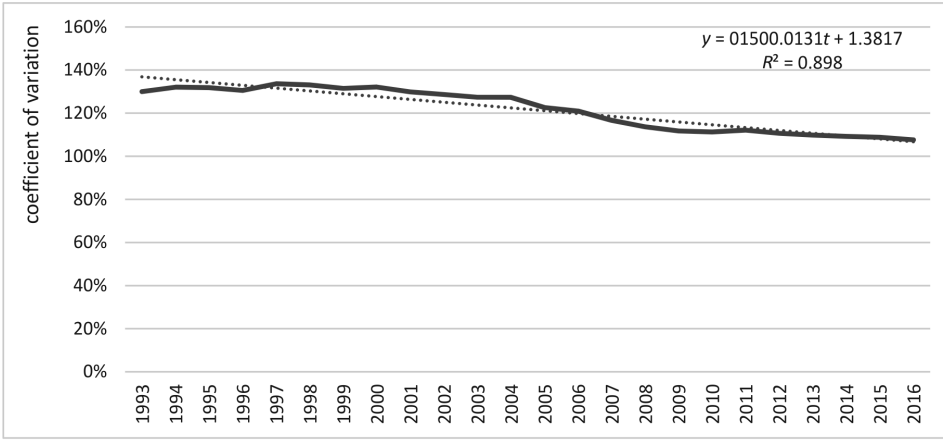


Figure 6.1. Coefficient of variation for 169 Real GDP per capita in constant 2011 USD
Source: own elaboration based on Maddison Project Database (MPD) data 2018.

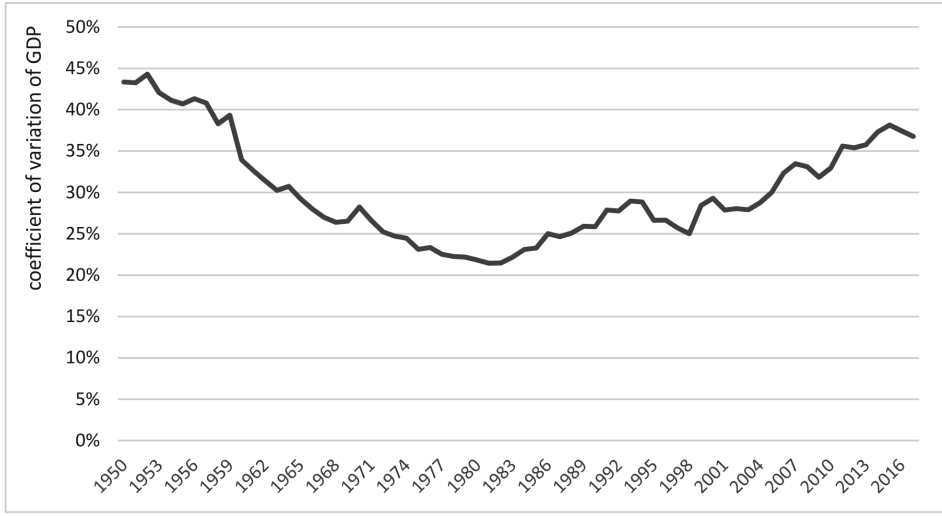


Figure 6.2. Diversification of GDP among the EU-15 Member States
Source: own elaboration based on Maddison Project Database (MPD) data 2018.

The analysis of annual data concerning European economies confirms this view – since 1950 (the year since annual GDP data have been known) Western European economies with an initially low level of income showed a higher rate of economic growth. The process of economic integration of Western European economies stopped in the 1980s – see Figure 6.2.

6.2. Economic convergence of the EU Member States

6.2.1. The cohesion policy as a response to growing economic inequalities in the EU[5]

On 5th March, 1957, in Rome, an intergovernmental conference on the common market and Euroatom, beginning the history of the European Union (although the Union has been operating under this name only since the early 1990s), was held.[6] "The Treaty establishing the European Economic Community (EEC)"[7] was signed at the conference. The Treaty of Rome, as it is referred to, was signed by representatives of six countries: Belgium, the Federal Republic of Germany (FRG), France, Italy, Luxembourg, and the Netherlands.[8] The task of the EEC was to create

For the first time, this argument (i.e. the falseness of the 2% convergence rate) was invoked by Quah [1996], who suggested that a relatively constant rate of convergence could be a manifestation of the bias in processes containing a unit root known to occur in small samples. In the mentioned article, Quah generated independent processes of the unit root and applied to them a beta-convergence test. In samples similar to Sala-i-Martin's, he received a similar, two-percent rate of convergence. Sala-i-Martin [1996b, pp. 1340–1341] refutes this objection, claiming the credibility of his calculations.

5 See: Kusideł [2013a, pp. 146–147].

6 The Treaty on European Union, establishing a new name for the European Community, was adopted at a meeting on 9–10th December, 1991 in Maastricht (hence its other name: the Treaty of Maastricht). The treaty was signed on 7th February, 1992, and entered into force on 1st January, 1993 – hence the various dates in sources informing about the official change of the name of the European Community to the European Union.

7 The "economic" adjective was later removed from the name, changing the title of the document to "Treaty establishing the European Community". The second agreement crowning the conference was the "Treaty establishing the European Atomic Energy Community (Euroatom)." Both are called the Treatises of Rome, and their text in Polish can be found, for example, at: http://polskawue.gov.pl/files/polska_w_ue/prawo/traktaty/Traktaty_rzymskie.pdf

8 Specifically, the signatures were affixed by representatives of the Government of the Kingdom of Belgium, Germany, France, Italy, as well as the Grand Duchy of Luxembourg, and the Kingdom of the Netherlands.

a common market and gradually harmonise the economic policy of the Member States of the Community, which was to lead to continuous and balanced expansion, stabilisation, raising the standard of living, as well as to closer relations between the Member States.[9] The issue of achieving *economic and social cohesion* in Europe – the main postulate of today's cohesion policy – was mentioned in the Preamble to the Treaty of Rome [cf. Rodríguez-Pose, Fratesi 2004, p. 5]). Since the beginning of its existence, it has been assumed that the Community will expand to include more countries (although initially the so-called "six" countries were reluctant to accept accession proposals, but enlargements have become a fact). As a result of the first enlargement in 1973, Great Britain, Denmark and Ireland were admitted to the Community. On 1st January, 1981, Greece joined, and 5 years later, in 1986 – Spain and Portugal. The fourth enlargement in 1995 encompassed Austria, Finland and Sweden. The EU enlargements so far[10] formally occurred on the first day of a given year, which is why 1st May 2004, the date of the largest enlargement encompassing as many as 10 new countries, was an exception. The next enlargement of the Community took place on 1st January 2007, when Bulgaria and Romania joined, and the last occurred in 2013, when the Union expanded to include Croatia, and since then we have had the EU-28.

Initially (i.e. until the early 1980s), the development policy of *regions* did not occupy much space in Community policies (in 1980, only 11% of the total budget was allocated to it). It should be noted, however, that at the time discrepancies in the level of income of individual countries forming the Community were not a problem, because not only did they not grow but they actually decreased – see Figure 6.2. The growing trend visible since the 1980s in the coefficient measuring inequalities in the GDP per capita of the European Community countries as well as the increase in this measure after subsequent enlargements (see: Fig. 6.3) created the need for actions aimed at preparing less developed countries and regions to meet membership criteria. For this purpose, in 1989, the Structural Funds were reformed by reconstructing the rules for their allocation as well as the allocated budget (whose share increased two-fold over just a few years: 1988–1992). Ultimately, the reform resulted in the coordination of activities financed under the three Funds (ERDF, ESF, EAGF) and the creation of a new Cohesion Fund (to alleviate the burden on the countries accessing the Economic and Monetary Union). After the reform, more than ⅔ of expenditure from the Structural Funds was concentrated in the so-called regions included in Objective 1, which has always concerned the equalisation of economic disparities.[11] The criterion for the qualification of regions to be covered by funds allocated to Objective 1

9 See: Łastawski [2006, pp. 116–119], based on "Traktat w sprawie utworzenia Europejskiej Wspólnoty Gospodarczej".

10 In which incomplete enlargements, such as that of East Germany on 3rd October, 1990, were omitted.

11 In the years 1988–1993, 1994–1999, as well as 2000–2006, Objective 1 of the cohesion policy was called "Promoting the development and structural adjustment of regions whose

is GDP per capita, measured according to the purchasing power parity, which does not exceed 75% of the EU average. Such concentration of financial resources meant a significant injection of funds in countries covered by this objective. The number of objective 1 regions in subsequent programming periods increased; in 1989, it comprised 44 regions (all regions of Greece, Portugal and Ireland, south of Italy, southwestern regions of Spain, and after the reunification of Germany, the former East Germany and eastern Berlin), while in the 2000–2006 programming period it already covered 167 regions) [cf. Rodríguez-Pose, Fratesi 2004, p. 8]). Figure 6.3 shows that after 2004 the EU regional policy faced the greatest challenge since its inception; as the accession of 10 new countries reversed the trend of income inequalities in the EU growing since the 1980s, but at the cost of increasing their level.

Figure 6.3. Diversity (measured by the coefficient of variation) of GDP per capita among the countries forming the European Community at various times of its existence
Source: own compilation based on data from Ameco (since 1960) and Penn World Table (1950–1959).

After the double deep recession in 2008 and 2011, the EU economy is now growing again. The crisis seriously affected almost all Member States. It halted the long-term reduction in disparities in GDP per head between the Member States. With the beginning of the recovery, however, these disparities have started to shrink again with growth everywhere, and higher rates in countries with lower levels of GDP per capita [*My Region, My Europe, Our Future* 2017].

development is lagging behind", while in the last programming period 2007–2013 Objective I is called "Convergence".

6.2.2. Economic beta-convergence among the EU Member States

Beta-convergence for cross-sectional data

In accordance with the methodology proposed in Section 4.2.1, the model of unconditional beta- convergence for cross-sectional data (4.1) was first estimated. The results are as follows:[12]

$$\frac{1}{17} ln\left(\frac{GDP\_pc_{i,2017}}{GDP\_pc_{i,2000}}\right) = 0{,}293^{***} - 0{,}027^{***} ln(GDP\_pc_{i,2000}),\ R^2 = 0.69 \qquad (6.1)$$

The above-presented equation, based on formula (4.2), shows the annual rate of convergence which is β = 2.7%. Additionally, based on formula (4.4), a half-life, which amounts to *hl*~26 years, was calculated.

The above-mentioned beta-convergence model for cross-sectional data indicates that in the years 2000–2017 convergence of GDP per capita, with a convergence rate of 2.7% per annum, was observed among the economies of EU-28, which suggests that today's differences between GDP per capita will be halved over the next 26 years.

As previously stated, the disadvantage of beta-convergence models for cross-sectional data is the fact that this kind of analysis omits the remaining years beyond the initial and final periods of analysis, while the selection of the first and last year of study can sometimes radically affect its results. To examine this, the table presented below gives the estimates of the convergence rate for model (4.1), where the initial year of analysis varied.

Table 6.1. Annual rate of convergence of GDP per capita of EU-28 countries (estimated on the basis of model 4.1) depending on the initial year of analysis

First and final years of analysis	Beta coefficient (annual convergence rate, %)
1	2
2000–2017	2.71
2001–2017	2.72
2002–2017	2.73
2003–2017	2.64

12 For this model, there was no relationship between the residual component and the explanatory variable, so it can be assumed that the directional coefficient is not biased.

1	2
2004–2017	2.60
2005–2017	2.50
2006–2017	2.48
2007–2017	2.19
2008–2017	1.79
2009–2017	2.17
2010–2017	2.04

Source: own calculations.

The above-presented table shows that the choice of the initial year of analysis has an impact on the rate of convergence, but does not change the conclusion regarding the occurrence of beta-convergence of GDP per capita among EU countries. The strongest convergence was recorded in the years 2002–2017 (when the annual rate of convergence of economies amounted to 2.73%), and the weakest in the years 2008–2017 (with annual convergence rate of 1.79%). It should be noted that 2008 was the year in which the effect of the financial crisis started to be observed in Europe, which was reflected in the very weak GDP growth of EU countries (but it was in 2009 that most economies experienced a decline).

Beta-convergence for panel data

Panel data-based models of absolute beta-convergence of real GDP per capita for the EU-28 countries and the years 2000-2017 are estimated below. An estimate of model (4.8) without effects specific for individual countries and years (pooled regression) can be written as follows:

$$ln\left(\frac{GDP\_pc_{it}}{GDP\_pc_{it-1}}\right)=0{,}425^{***}-0{,}039^{***}\,ln(GDP\_pc_{it-1}) \tag{6.2}$$

$$i = 1, \ldots, 28;\ t = 2000, \ldots, 2017.$$

Analogous FEM (a) and REM (b) models are written respectively as:

$$ln\left(\frac{GDP\_pc_{it}}{GDP\_pc_{it-1}}\right)=0{,}819^{***}-0{,}079^{***}\,ln(GDP\_pc_{it-1}), \tag{6.2a}$$

$$i = 1, \ldots, 28;\ t = 2000, \ldots, 2017,$$

$$ln\left(\frac{GDP\_pc_{it}}{GDP\_pc_{it-1}}\right) = 0{,}462^{***} - 0{,}043^{***} ln(GDP\_pc_{it-1}), \qquad (6.2b)$$

$$i = 1, \ldots, 28; \; t = 2000, \ldots, 2017.$$

In all the three above-presented regressions, the values of the parameter estimators at $\ln(GDP\_pc_{it-1})$ are negative and statistically significant, which indicates the convergence of GDP per capita. However, the rate of convergence calculated on the basis of formula (4.3) is quite strongly differentiated: from 3.9 to 8.2% annually. The above-presented results confirm the hypotheses cited in Chapter 4 that the results of the convergence analysis using panel data indicate a much higher convergence rate than in the case of cross-sectional data. Let us note that on the basis of the cross-sectional model, the convergence value of 2.7% was obtained, while in panel models the minimum result was 3.9% (maximum 8.2% per year).

6.2.3. Relative convergence

As mentioned in Section 4.2.3, the approach proposed there is appropriate if there are permanent common components in the data. In the case of EU-28 countries, such component is the average, which shows a strong, deterministic, growing trend indicating that the GDP of the EU-28 countries grew in the years 2000–2017 by an average of 641 euro per capita – see Figure 6.4.

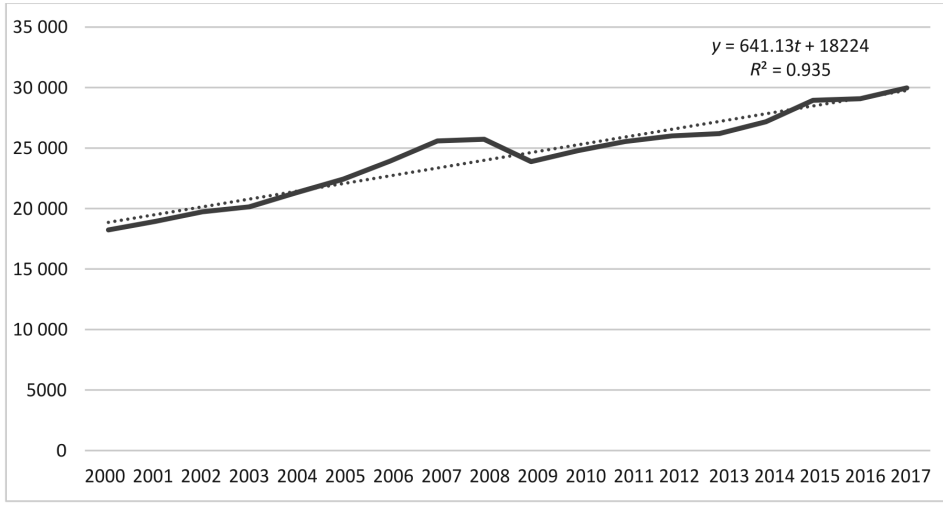


Figure 6.4. Average GDP per capita for the EU-28
Source: own compilation based on Eurostat data.

After the logarithmisation of all variables and the application of formulas (4.21) and (4.22), it was checked whether the values of cross-sectional variance H_t tend to 0, and the paths of GDP changes in individual countries – h_{it} – tend to 1[13] (as we have already described in Section 2.2.3, in the long term under convergence conditions $H_t \to 0$ and $h_{it} \to 1$). As shown in Figure 6.5, if the variance for the entire EU28 tends to 0, this is due to the decreasing variance of the states that joined the EU after 2004 (as it can be seen, among the countries of the "old" Union there is no phenomenon of diminishing variance).

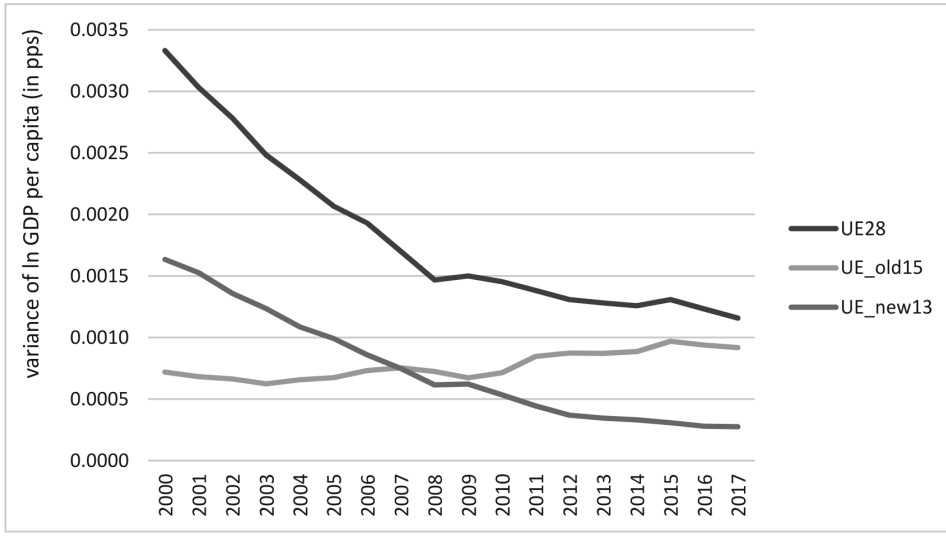


Figure 6.5. Cross-sectional variance H_t for GDP per capita of the EU-28 broken down by 15 "old" and 13 "new" Member States
Source: own compilation based on Eurostat data.

In order to study relative convergence, formula (4.23) was applied to 2/3 of the sample of 18-annual pieces of information from the years 2000–2017. The results are as follows:

$$log\left(\frac{H_1}{H_t}\right) - 2logL(t) = 1{,}128 - 2{,}00 * log(t) \tag{6.3}$$

The value of t-statistic for the key parameter in the above-presented regression at $log(t)$ is –1.68 and it is slightly less than the critical value of –1.65. Formally speaking, the hypothesis about the occurrence of relative convergence should be rejected (formally, as the coefficient only slightly exceeds the critical value).

13 Growth paths for individual countries were divided into those that in 2000 were characterised by GDP above the EU-28 average and those that in 2000 were characterised by GDP per capita below the EU-28 average.

The lack of relative convergence among all the EU-28 countries does not preclude its occurrence in the clubs of countries. In order to distinguish them, however, the algorithm proposed in Section 4.2.3 was not used, but instead the growth paths of particular countries after the removal of the average were analysed. It turned out that most countries strove to achieve common equilibrium (average), starting with levels above the average GDP per capita for the EU28 (Belgium, Denmark, Germany, Spain, France, Italy, Cyprus, Malta, the Netherlands, Austria, Finland, Sweden, and the United Kingdom) or below the average (Bulgaria, Czechia, Estonia, Croatia, Latvia, Lithuania, Hungary, Poland, Romania, and Slovakia).

A common feature of the countries mentioned above is that they strive to achieve the EU28 average values (either from above or from below). The following countries are exempt from this trend: Ireland, Luxembourg, Greece, Portugal, and Slovenia. These countries are moving away from the EU28 average, although for various reasons – Luxembourg and Ireland are reaching higher, as compared to the EU average, levels of GDP per capita, while Greece, Portugal and Slovenia are reaching lower levels. It is these countries that create separate clubs of relative convergence.

6.2.4. Sigma-convergence

According to the observations from Chapter 4, beta-convergence is a prerequisite for the occurrence of sigma-convergence. In the research from Section 6.2.2, this condition is met for the group of the EU-28 countries in the period 2000–2017. Therefore, the sigma-convergence analysis for GDP per capita of EU-28 countries was carried out below.

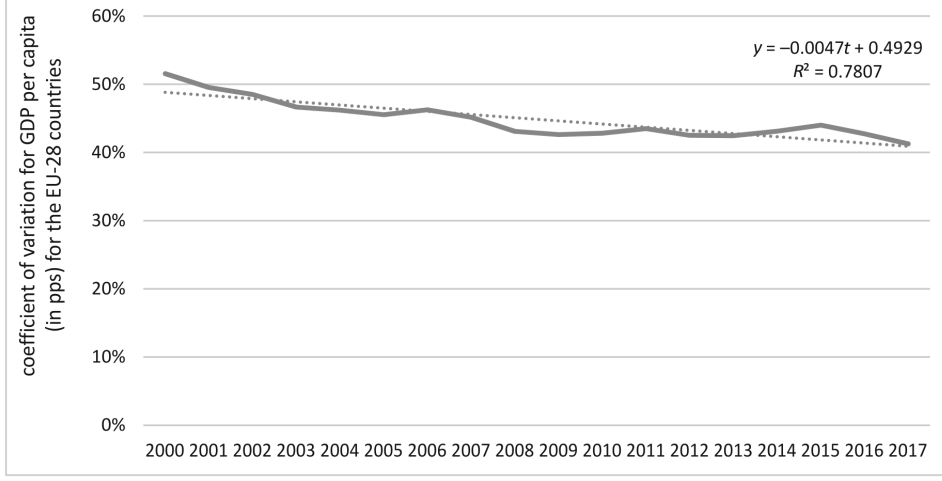


Figure 6.6. Sigma-convergence for the EU-28
Source: own elaboration based on Eurostat data.

Figure 6.6 shows the coefficient of variation for GDP per capita calculated for a group of EU-28 countries. This graph shows that the variation in GDP per capita decreased throughout the analysed period, albeit with varying intensity. In particular, in the years 2008–2015, the rate of decline slowed down.

6.2.5. Conclusions

The analysis of annual data concerning the European Union shows that until the early 1980s the Western European economies were reducing the gap in GDP per capita. This process has been reversed since the 1980s when increasing inequalities in the levels of economic development of the EU started to be seen. Only the accession of new members to the Community in 2004 reversed the negative trend in economic inequalities of EU countries – although at the expense of the increase in the level of these disparities (see Fig. 6.3).

The formal examination of the level and trend in economic inequalities may be carried out by means of various statistical methods (see the diagram in Section 4.1.2). The most popular methods are beta and sigma-convergence analysis. The research conducted in this chapter shows that in the years 2000–2017 a process of beta-convergence (the process of catching up by economies with a lower level of economic development) with a minimum annual rate of 2.7% occurred. The reduction of income inequalities among the EU-28 countries has been confirmed by sigma-convergence research, which additionally shows that the process of equalising GDP per capita among the EU-28 fell markedly in the years 2008–2015.

Interesting insights have been generated by the study of relative convergence among the EU-28 countries. This method of measuring inequalities takes into account to a large extent common trends occurring among the examined objects. In the case of GDP of EU countries, this is common economic growth of these countries manifested in the increase in the average value of EU-28 GDP. After eliminating this component, it turned out that most of the EU-15 economies strove to achieve the average "from above", i.e. reducing their relative difference in GDP in relation to the EU-28 average by lower growth rates. Meanwhile, most of the economies that joined the EU after 2004 strove to achieve the average "from below", i.e. reducing their relative difference to the EU-28 average through higher GDP growth. The exceptions are the economies of Luxembourg, Ireland, Greece, Portugal, and Slovenia. The first two economies differ from the EU in two areas: they are recording higher GDP levels than the EU average, and additionally, they are increasing this distance through higher rates of economic growth. Unfortunately, the economies of Greece, Portugal and Slovenia are moving away from the EU-28 average – they recorded a lower level of GDP per capita in 2000, and are further widening the gap by a lower rate of growth than the average in the EU-28.

6.3. Convergence of housing markets against the background of economic convergence

The empirically confirmed trend of reduction of inequalities in the level of economic development of the EU Member States and decrease in the diversity of European housing markets in terms of adopted diagnostic variables raises questions about the relationship between these processes. Is it possible, therefore, to conclude that one of the sources of convergence of housing markets is the ongoing economic convergence or the broadly understood progressive integration of the EU Member States manifested by economic convergence? Causes and mechanisms of changes taking place in European housing markets have a complex and multidimensional character. It is difficult to put them into one coherent theoretical concept. Economic but also political, social, cultural or demographic determinants lie at their foundations. Moreover, the historically shaped institutional order affects to a large extent developmental trajectories of housing markets in particular countries (the issue of *path dependence* of real estate markets is raised in Chapter 1).

While it can be stated that economic convergence of EU countries is not the only source of housing convergence, the said convergence creates conditions conducive to its occurrence. This process can be observed especially between the countries of the old EU and the new Member States, mainly from Central and Eastern Europe. Positive effects of the accession to the EU of new countries observed in the higher dynamics of their economic growth result primarily from the increased inflow of foreign direct investments and greater economic freedom, accelerated structural reforms and financial transfers from the Structural Funds [Sawicz 2012, p. 8]. Research carried out 5 years after the largest enlargement in the history of the EU in 2004 shows that among the main accession benefits for the new Member States the following are mentioned: a 1.75 percentage point higher economic growth rate, increased trade exchange within the internal market, a faster process of modernisation of economies manifested, among others, in the growing importance of the services sector and modern technologies, and an increase of labour migration enabling the improvement of the financial situation of many households [Five years of an enlarged EU…, pp. 3–5]. Real convergence is also accompanied by nominal convergence in terms of interest rates, inflation and public finances, raising the level of macroeconomic stability of EU countries.

Among the trends that are important for the development of housing markets, one should also indicate actions of the European Commission aimed at building a single market for retail financial services. An important part of this market is the mortgage loan segment. Integration efforts are aimed at eliminating the differences between the Member States in terms of mortgage accessibility and mortgage granting procedures. Increasing the efficiency and competitiveness of residential

mortgage markets is to be achieved through four main objectives [White paper on the integration… 2007]:

1. Creating conditions for offering mortgage loans in a cross-border arrangement as well as diversifying sources of their financing;
2. Increased diversification of credit products;
3. Increased consumer confidence (borrowers);
4. Creating conditions for customer mobility.

The process of catching up by the new EU Member States to more developed economies and the accompanying improvement in the standard of living of residents create real opportunities also to reduce the civilisational gap in the area of housing. Therefore, it can be hypothesised that European integration, which is the source of economic convergence of the Member States as well as in some areas of their institutional convergence, is a process that also makes convergence of housing markets more dynamic. In order to test the above-presented hypothesis, the significance of GDP per capita, measured by the purchasing power parity, as an explanatory variable for beta- and sigma-convergence of EU housing markets was tested.[14]

In the case of beta-convergence, conditional convergence models (formula 4.10) were estimated with GDP per capita as a variable determining the developmental trajectory of domestic housing markets. The results of estimation of panel models using pooled regression, LSDV as well as GMM-sys are presented in Table 6.2.

In most conditional beta-convergence models, the estimates obtained confirm the significance of GDP per capita as a structural factor determining the course of convergence. The exception is the purchasing power indicator in the housing market, which due to its specificity is primarily influenced by fluctuations in the prices of residential real estate and the dynamics of average remuneration in the studied economies. It is worth emphasising, however, that the impact of GDP per capita on the rate of changes in the adopted housing indicators is not always identical. Negative values of parameters were obtained for the housing deprivation rate, the housing ownership rate and the mortgage loan market development index. Thus, countries with a higher level of GDP per capita show a lower rate of change in these housing market indicators. This may be justified by a more favourable housing situation usually found in more developed countries, which translates into lower dynamics of its changes. Caution should be taken in interpreting the parameters of the estimated models due to the aforementioned complex nature of processes occurring in housing markets which cannot be fully explained by referring only to the economic dimension of economic convergence of EU countries.

14 The analysis was carried out for housing indicators for which the convergence had been positively verified (cf. Chapter 5).

Table 6.2. Results of conditional beta-convergence estimation

LnHstock	**GMM-SYS**	**LSDV**	**Pooled**	**LnHdepriv**	**GMM-SYS**	**LSDV**	**Pooled**
	(1)	**(2)**	**(3)**		**(1)**	**(2)**	**(3)**
LnHstock(–1)	0.984 (0.000)	0.8853 (0.000)	0.9957 (0.000)	LnHdepriv(–1)	0.6927 (0.000)	0.6565 (0.000)	0.9458 (0.000)
LnGDPpc	–0.0098 (0.319)	**0.0153** (0.008)	**–0.0115** (0.000)	LnGDPpc	**–0.5408** (0.030)	**–0.356** (0.001)	–0.0453 (0.326)
R-squared	–	0.994	0.992	R-squared	–	0.964	0.955
Residual standard error	0.011	0.013	0.013	Residual standard error	0.210	0.221	0.234
AR(1)	–2.282 (0.022)	–	–	AR(1)	–2.788 (0.005)	–	–
AR(2)	–1.449 (0.147)	–	–	AR(2)	1.211 (0.226)	–	–
Sargan test	20.003 (1.000)	–	–	Sargan test	21.832 (1.000)	–	–
Wald test	187.01 (0.000)	–	–	Wald test	191.077 (0.000)	–	–
LnHpp	**GMM-SYS**	**LSDV**	**Pooled**	**LnHowner**	**GMM-SYS**	**LSDV**	**Pooled**
	(1)	**(2)**	**(3)**		**(1)**	**(2)**	**(3)**
LnHpp(–1)	0.9415 (0.000)	0.8304 (0.000)	0.9427 (0.000)	LnHowner(–1)	0.8833 (0.000)	0.8502 (0.000)	0.9398 (0.000)
LnGDPpc	–0.066 (0.489)	0.0407 (0.225)	–0.004 (0.771)	LnGDPpc	**–0.0306** (0.000)	**–0.0082** (0.086)	**–0.0144** (0.000)
R-squared	–	0.935	0.927	R-squared	–	0.987	0.983
Residual standard error	0.080	0.280	0.280	Residual standard error	0.023	0.017	0.019
AR(1)	–1.903 (0.057)	–	–	AR(1)	–2.701 (0.006)	–	–
AR(2)	–2.068 (0.039)	–	–	AR(2)	1.654 (0.098)	–	–
Sargan test	12.319 (1.000)	–	–	Sargan test	24.747 (1.000)	–	–
Wald test	137.414 (0.000)	–	–	Wald test	1042.770 (0.000)	–	–

LnMortDebt	GMM-SYS	LSDV	Pooled	Variables: Hstock – dwellings per 1000 inhabitants; Hdepriv – severe housing deprivation rate; Hpp – purchasing power of households in the housing market; Howner – home ownership rate; MortDebt – household mortgage debt to GDP.
	(1)	(2)	(3)	
LnMortDebt(–1)	0.8983 (0.000)	0.8718 (0.000)	0.9035 (0.000)	
LnGDPpc	–0.1475 (0.184)	**–0.1362** (0.004)	–0.0013 (0.950)	
R-squared	–	0.988	0.985	
Residual standard error	0.125	0.116	0.128	
AR(1)	–2.0465 (0.041)	–	–	
AR(2)	0.6204 (0.535)	–	–	
Sargan test	25.877 (1.000)	–	–	
Wald test	1420.95 (0.000)	–	–	

Source: own elaboration.

In the next stage of the conducted research, an attempt was also made to answer the question about the importance of sigma-convergence occurring between the EU economies for the sigma convergence of housing markets. To this end, in the case of each housing indicator for which a decrease in cross-sectional differentiation was confirmed in the years 2000–2017, a linear model was estimated in the form of:

$$V_{z,t} = \beta_0 + \beta_1 \cdot V_{gdp,t} + \varepsilon_t \tag{6.4}$$

where:
$V_{z,t}$ – coefficient of variation for the selected housing indicator,
$V_{gdp,t}$ – coefficient of variation for GDP per capita,
ε_t – random component.

The results of the estimation are presented in Figure 6.7 and Table 6.3.

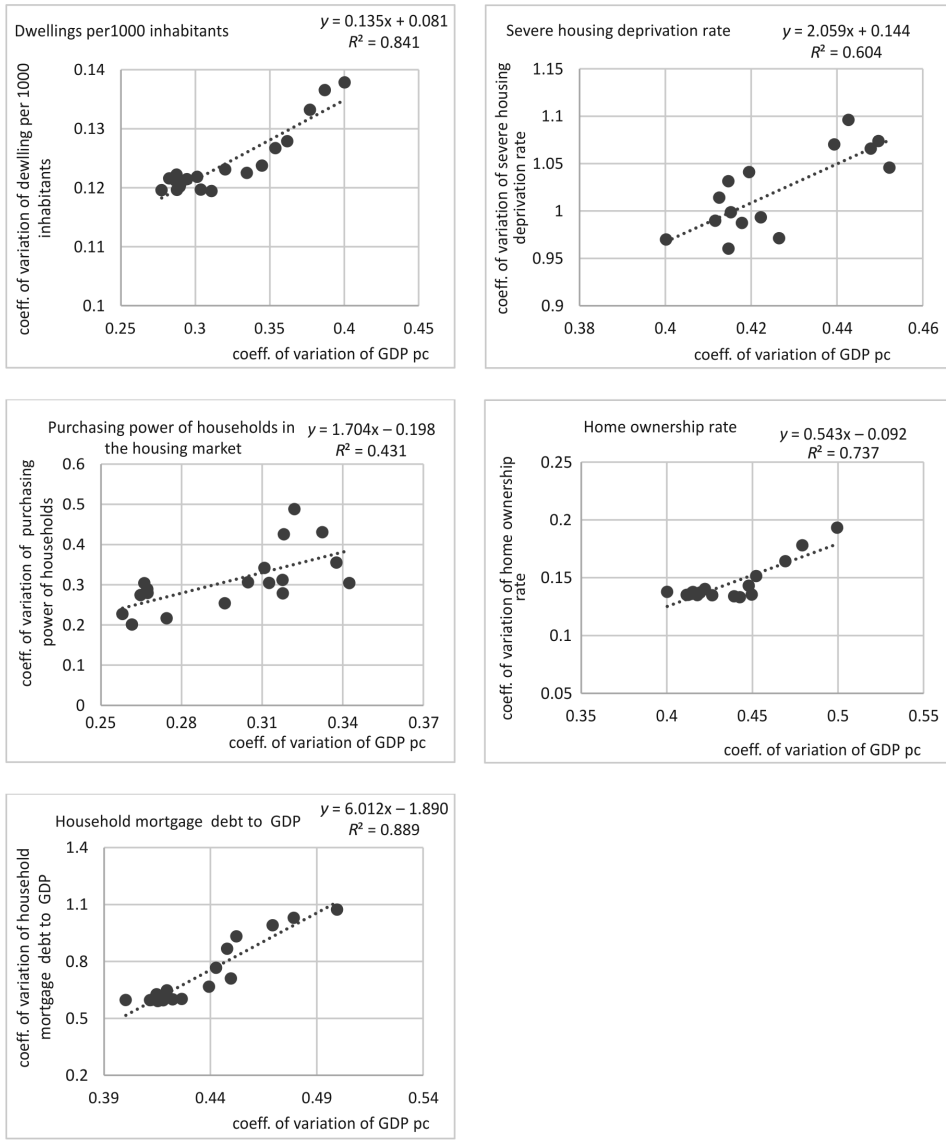


Figure 6.7. Sigma-convergence of housing markets against the background of economic convergence
Source: own elaboration.

Table 6.3. Sigma-convergence of housing markets against the background of economic convergence

	OLS estimation results				
	Variable (1)	**Variable (2)**	**Variable (3)**	**Variable (4)**	**Variable (5)**
Const. (p-value)	0.0807 (0.000)	0.1440 (0.478)	–0.1979 (0.196)	–0.0922 (0.019)	–1.8901 (0.000)
coef. β_1 (p-value)	**0.1354** (0.000)	**2.0586** (0.001)	**1.7039** (0.003)	**0.5434** (0.000)	**6.0120** (0.000)
R^2	0.842	0.604	0.431	0.737	0.889
SEE	0.0024	0.0282	0.0586	0.0089	0.0588

(1) Dwellings per 1000 inhabitants; (2) Severe housing deprivation rate; (3) Purchasing power of households in the housing market; (4) Home ownership rate; (5) Household mortgage debt to GDP.

Source: own elaboration.

For all models, the coefficient of variation for GDP per capita proved to be a statistically significant explanatory variable. Without formulating too far-reaching conclusions, it should be stated that both in the overall economic and housing dimension, European economies experience convergence (in this respect the processes are mutually aligned). The direction of macroeconomic changes can also be regarded as conducive to catching up by the housing markets of new Member States to the level of development and housing standards of Western countries. However, it cannot be categorically stated that these changes are the sole source of housing convergence.

The significance of the macro-trend of economic convergence of the European Community countries was also verified in relation to housing prices, and club convergence was confirmed in their case. In order to deepen the analysis of potential determinants of residential property prices in the studied European markets, and in consequence also their club convergence, a wider catalogue of explanatory variables was included in addition to GDP per capita.

In the literature, an overview of factors that have a fundamental impact on the level and dynamics of housing prices can be found. It is contained, among others, in works of: Droes and van de Minne [2016], Balazs and Dubravko [2007], Cohen and Karpavičiūtė [2017], Geng [2018] and Capozza et al. [2002]. Among these factors, the most common are [Żelazowski 2011, 2019]:

- economic factors including macro and microeconomic indicators of the economic situation (GDP dynamics, value added, sold production of industry), labour market indicators (unemployment rate, average salary), and financial

market indicators (interest rates, exchange rates, stock market indicators, availability of bank loans and other sources of external financing);
- socio-demographic factors including population changes, net migration, age and gender structure of the population, as well as social inequalities;
- institutional factors encompassing legal and administrative determinants of investment activity in the real estate market, real estate trading, real estate taxation, and the model of implemented housing policy;
- technical and resource-related factors associated with, among others, the size and structure of housing stock and its infrastructural environment.

For the purpose of analysing the main determinants of price convergence of European housing markets, a panel model of residential real estate prices [Lin et al. 2015] was estimated for each of the identified convergence clubs in the form of:

$$\begin{aligned} lnP_{i,t} &= \beta_0 + \beta_1 \cdot lnGDPpc_{i,t} + \beta_2 \cdot lnIncome_{i,t} + \beta_3 \cdot lnUnempRate_{i,t} \\ &+ \beta_4 \cdot lnMortDebt_{i,t} + \beta_5 \cdot lnHstock_{i,t} \\ &+ \beta_6 \cdot lnOwnerRate_{i,t} + \beta_7 \cdot PopulGrowth_{i,t} + \beta_8 \cdot lnPopulDensity_{i,t} \\ &+ \beta_9 \cdot lnPopul25-44_{i,t} + \varepsilon_{i,t} \end{aligned}$$

where:
$P_{i,t}$ – average price of residential real estate,
$GDPpc_{i,t}$ – GDP per capita according to purchasing power parity,
$Income_{i,t}$ – gross disposable income per capita,
$UnempRate_{i,t}$ – unemployment rate,
$MortDept_{i,t}$ – mortgage debt of households in relation to GDP,
$Hstock_{i,t}$ – housing stock (number of flats per 1000 inhabitants),
$OwnerRate_{i,t}$ – home ownership rate,
$PopulGrowth_{i,t}$ – change in population over a 5-year period (in %),
$PopulDensity_{i,t}$ – population density (population per sq. km),
$Popul25-44_{i,t}$ – percentage of people aged 25–44 in the total population,
$\varepsilon_{i,t}$ – random component.[15]

The results of model estimation for separate price convergence clubs (Club 1: France, Germany, Italy, Belgium, Finland, Poland, the Netherlands, Ireland, UK; Club 2: Spain, Portugal, Greece, Bulgaria) are presented in Table 6.4 and Table 6.5.

15 Data sources for variables: *MortDebt*; *Hstock*; *OwnerRate* are presented in Chapter 4. For other data, Eurostat databases were used.

Table 6.4. LSDV estimation results for Club 1 price convergence

	Model				
	(1)	**(2)**	**(3)**	**(4)**	**(5)**
LnGDPpc (p-value)	**1.0746** (0.000)				
LnIncome (p-value)		**1.1527** (0.000)	**0.6802** (0.000)	0.1382 (0.304)	**0.2524** (0.055)
LnUnempRate (p-value)		**–0.1678** (0.000)	**–0.1678** (0.046)	**–0.3484** (0.007)	**–0.3371** (0.000)
LnMortDebt (p-value)			**0.2718** (0.000)	**0.3591** (0.000)	**0.3121** (0.000)
LnHstock (p-value)			–0.5229 (0.246)	**–1.2420** (0.002)	**–1.0548** (0.008)
LnOwnerRate (p-value)			–0.1800 (0.292)		
PopulGrowth (p-value)				**0.0134** (0.021)	**0.0142** (0.017)
LnPopulDensity (p-value)				**2.4308** (0.000)	**2.5026** (0.000)
LnPopul25-44 (p-value)				**–0.4427** (0.006)	
LSDV R^2	0.906	0.936	0.952	0.966	0.965
Within R^2	0.595	0.724	0.795	0.856	0.850
SEE	0.144	0.119	0.104	0.088	0.089
F-statistics	162.929	222.981	235.505	295.398	301.832
AIC	−174.980	−241.843	−289.197	−349.527	−342.989

Source: own elaboration.

Table 6.5. LSDV estimation results for Club 2 price convergence

	Model				
	(1)	**(2)**	**(3)**	**(4)**	**(5)**
LnGDPpc (p-value)	**1.3318** (0.000)				
LnIncome (p-value)		**1.1445** (0.000)	**0.8151** (0.000)	**0.4255** (0,000)	**0.4056** (0.000)
LnUnempRate (p-value)		**–0.2132** (0.000)	**–0.0983** (0.046)	**–0.2667** (0.007)	**–0.2795** (0.000)
LnMortDebt (p-value)			**0.3901** (0.000)	**0.3294** (0.000)	**0.3127** (0.000)
LnHstock (p-value)			**–2.6198** (0.000)	–0.2849 (0.427)	
LnOwnerRate (p-value)			–0.1949 (0.808)		
PopulGrowth (p-value)				**0.0302** (0.000)	**0.0169** (0.000)
LnPopulDensity (p-value)				**3.1029** (0.000)	**3.2603** (0.000)
LnPopul25-44 (p-value)				**–0.8917** (0.013)	
LSDV R^2	0.934	0.939	0.976	0.994	0.994
Within R^2	0.663	0.688	0.877	0.969	0.967
SEE	0.167	0.161	0.103	0.052	0.054
F-statistics	239.525	204.799	322.441	1029.749	1199.716
AIC	−48.691	−52.193	−113.303	−209.983	−206.639

Source: own elaboration.

In the presented models, in the first step, the importance of GDP per capita as a factor explaining real estate prices in individual clubs was verified (1). In both cases, it can be considered as an important variable determining price trajectories in housing markets (a high level of the R-squared ratio). However, taking into account the more detailed characteristics of the socio-economic environment of

the studied markets, the explanatory significance of GDP per capita has clearly dropped, hence this variable is omitted in further analysis. According to the final version of the models (5), factors significantly affecting housing prices in individual markets include: the financial situation of households and, consequently, also their purchasing power in housing markets, the determinants of which in the models were average gross disposable income per capita, the unemployment rate, the scale of mortgage debt of households (mortgage debt ratio as % of GDP), as well as demographic statistics covering the population growth over 5 years along with population density. In addition, in the case of Club 1, the level of satisfaction of housing needs was also significant (measured by the population of 1000 inhabitants). There are noticeable differences in the significance of these factors between the clubs of price convergence. First of all, a stronger impact of disposable gross income and population density on housing prices of Club 2 markets should be highlighted. With respect to the other variables, the differences in the estimated parameters are not so significant.

Despite the relatively high level of explanation of changes in the prices of residential real estate within individual clubs, it should be remembered that the price convergence mechanism has a complex foundation and, apart from its determinants, its course is also influenced by the institutional order unique for each country or the adopted housing policy model.

Chapter 7

An attempt to assess housing convergence and its effects

7.1. Directions of changes in housing markets in the context of convergence processes

7.1.1. Changes in the housing policy and the current housing situation in the EU Member States

In the light of the conducted research, it should be stated that European housing markets have undergone significant changes in the adopted research horizon. The changes have been both quantitative and qualitative in nature, and have resulted in a process of general improvement in the standard of living of households as well as in visible development of the institutional environment of the housing market. It should be noted, however, that the observed developmental trajectories of individual markets have not been identical, there are noticeable differences in the dynamics and sometimes also in the direction of changes.

Housing convergence processes have a complex background. It is difficult to clearly indicate a group of factors initiating and supporting the convergence of the markets in question. These include economic determinants, which, according to the literature and the results of our own research, are of fundamental importance in this respect. It is also, however, necessary to emphasise the significance of political, social and demographic changes which have been experienced by the Central and Eastern European economies since the 1990s and which have had a strong impact on the direction of development of their housing markets. The marketisation of the housing sector, combined with the dynamic economic development of this part of Europe, has accelerated the process of catching up with Western European housing standards. Sources of housing convergence can also be seen in macro determinants (progressive European integration, synchronisation of economic

cycles, a common monetary policy within the euro area, and increased mobility of human capital) and micro determinants (improvement of the economic situation of households, an increase of social and ecological awareness, or diffusion of Western cultural patterns). Micro determinants shape households' aspirations and expectations, e.g.: in terms of their housing situation, while macro determinants largely determine the possibilities of their satisfaction.

It can be expected that as the housing standards gradually converge in European markets, convergence dynamics will lose its strength, as has been the case with economic convergence. Therefore, full unification of housing markets or standardisation of housing services should not be expected. In addition to macroeconomic determinants, which in the context of economic convergence of EU countries will show smaller differences than in previous periods, a wide catalogue of factors determining differences among individual domestic markets will remain. Among these factors, historical, social, cultural, and political determinants are important. They significantly shape the *path dependence* of housing markets in individual countries.

The housing policy determines the direction of changes and introduces new instruments. Despite the fact that each country implements its housing policy sovereignly, there are some common trends and similar processes resulting from social, economic, and political determinants. The housing policy changed significantly in the 1980s, as it was considered that the existing instruments did not correspond to modern economies and their needs. As a result, the existing methods of financing were replaced with assistance in the form of housing allowances, non-profit entities which took over the housing obligations of public entities were supported, the rental policy was reformed so that rents covered the costs of maintaining residential buildings, ownership was supported, credit requirements were relaxed, and housing support in the form of tax breaks and exemptions was used [Maclennan, Miao 2017, pp. 29–30]. An increase in demand in agglomerations accompanied by insufficient supply contributed to an increase in prices, hence problems of scarcity of affordable housing and growing inequalities intensified. In the current post-crisis phase, the continuation of these processes is visible. Dynamic economic growth will take place in developing agglomerations, supercities, and insufficient supply, in particular in the short term, will cause a gradual increase in prices. The reduction of public housing expenditure has far-reaching consequences for households, labour markets, as well as economic and social relations.

Changes in political, economic and social determinants are a source of evolution of housing systems. Their multidimensionality and specificity make it impossible to prepare a clear classification, though one can try to group systems with similar characteristics and search for similarities and differences. Table 7.1 presents basic components of housing policies in selected EU countries. Direct reference to the housing needs of citizens in the Constitution, the main

direction of state support for meeting housing needs, regulations related to the rental market, and entities responsible for intervention in the housing market were included.

Table 7.1. Basic components of housing policies in selected EU countries

Direct reference to housing needs in the Constitution	State support is primarily directed at ownership	Directly supported entities comprise a limited group of households that are unable to meet housing needs on their own	The tenant-owner relationship is balanced in terms of rights and obligations	State interference in the rates of rent in the housing market	Housing responsibilities executed at the state level (legislative activities, support programmes) and the lowest-level local government is seen as an implementing entity
Belgium, Finland, Greece, Hungary, the Netherlands, Poland, Portugal, Slovenia, Spain Sweden	Belgium, Bulgaria, Croatia, Czech Republic, Estonia, Greece, Hungary, Ireland, Italy, Latvia, Poland, Romania, Slovakia, Slovenia, Sweden, United Kingdom	EU countries apart from Greece and Sweden	EU countries apart from the Netherlands and Italy (predominance of tenants' rights), France and Greece (predominance of owners' rights). In Bulgaria, Croatia, and Hungary, the problem of low quality of legal regulations exists	Austria, Belgium, Croatia, Czech Republic, Estonia, France, Germany, Italy, Latvia, Lithuania, the Netherlands, Poland, Slovakia, Slovenia, Sweden, United Kingdom	EU countries apart from Belgium where competences are placed mainly at the regional level

Source: own elaboration based on Ten Law, The State of Housing in the EU 2017.

As the analysis of the list presented in the table above shows, direct reference to housing needs and assistance in satisfying these needs in the Constitution is not common, but it should be remembered that even when this reference appears, it does not give citizens a legal basis to sue the state when their housing needs are not

satisfied. The indication of the right to housing as one of the basic social rights is treated as a manifestation of the importance of the housing issue.

For many years, state support focused primarily on enabling ownership for the widest possible group of citizens, direct financial assistance was used for this purpose along with tax breaks. In recent years, it has been observed that ownership does not bring only positive consequences, and several countries have officially changed the direction of their housing policy to neutral, for example, Spain and Portugal[1] (this does not preclude the use of instruments supporting ownership). Direct support in the form of granting rights to social housing currently mainly concerns households in need, which was also emphasised in the definition of social housing mentioned earlier. The new EU-level regulation has forced several countries, including the Netherlands and France, to limit the addressees of housing assistance. Only Sweden has made changes that have gone in a different direction – it grants the right to housing from the public housing stock to each household in that country, but it is not called social housing. Greece is unique among the EU Member States because it does not provide public housing stock.

An important problem related to the housing policy is the influence of public entities on the rates of rent or the possibility of its changes, the scope of this intervention is visible in many EU countries, although it has decreased in recent years. Over the years, far-reaching changes leading to transformations in the ownership structure were visible. When restrictions placed on private owners of the rental housing stock in terms of making a profit led to a withdrawal from this type of investment, a gap in the stock of rental dwellings necessary to ensure mobility in the labour market emerged. This was clearly revealed when, due to the universality of privatisation processes of public housing, the share of municipal rental stock decreased significantly.

Another important sphere of housing policy is the relationship between rights and obligations of parties to lease agreements. In recent years, solutions have been introduced limiting the position of the tenant as a party to the agreement. The change primarily refers to the possibility of termination of the contract by the owner, facilitating the eviction of the tenant.

Competences and obligations regarding direct actions in the local housing market belong primarily to local government. It has no possibility of meeting reported housing needs, even in the case of a narrow group of assistance recipients, so it tries to activate various types of private entities operating on a for-profit and non-profit basis.

The current state of EU housing systems can be analysed in a simplified manner on the basis of indicators such as: the number of dwellings per 1000 inhabitants, the rate of ownership, mortgage debt or the housing cost overburden rate – see

1 Undoubtedly, it is easier to change the provision of legal regulations than the beliefs and aspirations of people.

Table 7.2. Evolution, which is an ongoing process, has not led to harmonisation, as has already been emphasised. Comparison of housing system components presented in Table 7.2 provides a clear picture of current differences and similarities among individual countries.

Table 7.2. The level of satisfaction of housing needs in selected EU countries in 2017

Country	The number of dwellings per 1000 inhabitants in 2017*	Ownership rate (%)	Share of social housing (%)	Mortgage debt per adult citizen (thous. EURO)	Housing cost overburden rate for total households/ households at risk of poverty
1	2	3	4	5	6
Austria	547	55.0	20.7	14.4	7.1/40.3
Belgium	474	72.7	6.8	25.8	9.1/34.4
Bulgaria	551	82.9	0.2	0.7	18.9/50.1
Croatia	524	90.5	Na	2.0	5.8/26.2
Czechia	454	78.5	6–7	5.2	8.7/44.2
Denmark	490	62.2	19.6	54.3	15.7/75.4
Estonia	385	81.8	1.4	6.6	4.8/18.4
Finland	545	71.4	13	21.7	4.3/18.2
France	539	64.4	16.8	18.3	4.7/20.1
Germany	490	51.4	3.9	19.9	14.5/48.5
Greece	601	73.3	Na	6.6	39.6/89.7
Hungary	449	85.2	Na	1.7	10.7/49.4
Ireland	416	69.5	8.7	23.4	4.5/19.9
Italy	551	72.4	3.7	7.4	8.2/32.9
Latvia	476	81.5	0.3	2.7	6.9/25.6
Lithuania	551	89.7	3	3.0	7.2/26.8
the Netherlands	476	69.4	30	49.1	9.4/40.9
Poland	379	84.2	7.6	3.0	6.7/30.4
Portugal	573	74.7	2	11.0	6.7/26.0

Table 7.2 (cont.)

1	2	3	4	5	6
Romania	449	96.8	1.5	0.9	12.3/36.3
Slovakia	352	90.1	3	5.7	8.4/38.9
Slovenia	450	75.6	6	3.5	5.2/26.7
Spain	542	77.1	2.5	13.0	9.8/36.5
Sweden	480	65.2	19 (public dwellings)	50.8	8.4/38.8
United Kingdom	425	65.0	17.6	29.6	12.4/40.8

* due to the inability to indicate the number of dwellings inhabited in 2017 in all the analysed countries, the available indicator of the number of all dwellings was used, which means that the data cannot be compared in time including 2017.
Source: own elaboration based on: The State of Housing in the EU 2017, Eurostat.

The number of dwellings per 1000 inhabitants ranges from 352 in Slovakia to 601 in Greece and 573 in Portugal. However, one cannot forget that there are many holiday homes in these last two countries. Nevertheless, differences between the "old" EU and most post-socialist countries are visible at first glance. There are also differences in the share of owner-occupied dwellings, Germany shows the lowest share at the level of 51.4%, and the highest is recorded in Romania and reaches 96.8%. Serious differences occur in the size of the social housing stock – the Netherlands is the leader in this respect, and the lack of such housing is recorded in Greece, very few such dwellings are reported in Bulgaria, Latvia and Romania. Mortgage debt per adult citizen reaches EUR 54.3 thous. in Denmark and only EUR 0.7 thous. in Bulgaria. Overburdening with housing costs is also at a heterogeneous level – overall, the biggest problems are experienced by households in Greece, Bulgaria, and Denmark, and among the households on the verge of poverty the worst situation is in Greece, Denmark, Bulgaria, and Hungary.

7.1.2. Convergence processes in post-socialist states

In the assessment of trends existing in European housing markets, their spatial dimension becomes important. Internationally, the trend towards a reduction in the diversity of housing markets has been confirmed. It is particularly noticeable between developed markets of Western Europe and markets of new EU Member States. Statistical data confirm that the historical civilisational gap dividing Western and Central and Eastern Europe is decreasing. However, this process is long-term

and is a natural consequence of the large remaining disparities in housing stocks of old and new EU countries, differences in their quality standard, or in the scale of housing construction. The pace of housing convergence is also important, which, according to research results ranges from 2.36% to 6.47%, depending on the adopted housing indicator, which translates into a long-term process of blurring the differences between markets (half-life indicators of 11 to even 29 years old).

The distinguishing of a group of post-socialist states allows for making some general observations, but also forces us to introduce a division within this group. The search for an explanation of differences in determinants that have influenced the functioning of the housing markets of Western European and post-socialist countries may have various dimensions. One can focus on economic and social factors [Mandič, Cirman 2012], or one can examine primarily institutional assumptions [Lowe, Tsenkova 2003; Stephens, Lux, Sunega 2015]. Based on this latter approach, several elements can be seen that fundamentally affect the current shape of housing markets in post-socialist countries. It is legitimate to state that it is not the case of *tabula rasa*, as the path dependence is pronounced and strong, and not only in relation to the period of centrally controlled economy. Focusing on the transformation that took place after 1989, it can be pointed out that, unlike in Western European countries, the housing policies of post-socialist states have perpetuated existing inequalities [Stephens, Lux, Sunega 2015, p. 1229]. Giveaway privatisation, which allowed for the withdrawal of the broadly understood state from housing obligations towards its citizens, has resulted in a fundamental change in the ownership structure – a huge increase in the share of private owners, but without a significant increase in the mortgage burden. This is one of the most characteristic elements of the housing markets of post-socialist countries. It was created as a result of the specific granting[2] by the broadly defined state of company and communal dwellings, and in some countries also cooperative ones, to their current users. Therefore, the source of housing wealth in this case is not the family, as in Southern European countries [Allen 2006]. Attention should be paid to the effects of such action – the division that existed earlier grouped separately beneficiaries of the state who had the rights to use housing on the basis of administrative decisions, users of cooperative flats who had paid specific contributions (depending on the type and amount of the contribution different rights had been obtained), and private owners. The latter owned real estate located most often in rural areas, but also tenements, and in principle, they did not have the right to decide on the manner of their use. The group of beneficiaries of privatisation comprised of those who used dwellings on the basis of allocation decisions, and users of cooperative flats were not in such a favourable situation (although regulations in individual countries differed). Those who had no rights to flats or were owners

2 The authors understand the concept of granting the right to purchase property for a fraction of the value of a dwelling.

of rural land and tenement houses did not benefit. A separate and serious problem was the conflict between the rights of flat users and former flat owners who applied for the return of their properties. In principle, the properties were returned to their former owners or their heirs, if they proved their claims, but with a guarantee of tenants' protection. This led to further escalation of conflicts (more broadly on the subject in Chapter 3).

People who became owners due to privatisation were wealthy from the point of view of property value, but the often poor technical condition of the housing stock generated very serious costs. This resulted in a paradoxical situation when, from the point of view of housing assets, the home owner is rich, but cannot afford basic renovation expenses, because housing wealth does not translate into financial wealth. Often this situation affected older people, they could have sold their dwellings, but a different place of residence would have been necessary.[3] In response, a kind of reshuffling occurred, and still does, when the grandchild after becoming independent takes up the grandparents' premises, while they move into his or her previous place.

It should be emphasised that those who were not beneficiaries of privatisation were left without significant state assistance. The stock of social housing, significantly reduced by privatisation and often blocked by existing tenants, does not absorb new people who seek to become independent or are mobile looking for a job. Until now, assistance programmes were directed primarily at property buyers purchasing premises for their own needs, i.e. at least moderately well-off people.

It can be said that all post-socialist countries are striving to improve qualitative and quantitative housing conditions, "catching up" to Western Europe as it were, which is confirmed by the results of beta-convergence and sigma-convergence analysis. However, there are still significant differences among individual housing systems that remain.

As indicated earlier, there are differences between the conditions for the development of post-socialist countries that have allowed us to distinguish three groups: the Baltic States, the reformist countries of Central Europe, and the countries of South-eastern Europe.[4] This division was used, among others, to study changes in developmental trajectories of housing systems in post-socialist countries [Soaita, Dewilde 2017]. The authors have come to the conclusion that, despite the passage of years, existing groups continue to develop "running on parallel tracks." Based on the research conducted, the statement that the "post-socialist" label can-

3 In Poland, sales before the expiry of five years from the time of purchase meant the need to return the discount granted, unless the money obtained from the sale was used to improve housing conditions. This stopped some new owners from selling their properties.

4 This is described in more detail in Chapter 3, the first group includes Lithuania, Latvia and Estonia, the second comprised Poland, the Czech Republic, Slovakia, Hungary, Slovenia, and Croatia, while the last included Bulgaria and Romania, taking into account the countries currently belonging to the EU.

not be used as the main explanation of the existing differences among individual housing systems is clearly confirmed [as well as in Tuvikene 2016; Chelcea, Druță 2016]. The three groups identified were initially similar in general terms taking into consideration basic system components. However, over time, there have been system transformations and changes in housing market conditions.

The analysis of housing conditions in post-socialist countries has allowed us to indicate a reshuffle which is slowly taking place[5] – the best situation initially existed in the reformist countries (but Poland stood out negatively). Currently one can distinguish the Baltic States, Croatia, the Czech Republic, Slovakia, and Slovenia as an example of medium to good housing conditions, Bulgaria, Hungary, and Poland as a group of countries with lower quality housing conditions (from the worse level in Bulgaria to the average level in Poland and Hungary), and Romania as an example of the most difficult housing conditions [Soaita, Dewilde 2017, p. 24]. When assessing the level of socio-economic and housing inequalities, attention has been drawn to the fact that in the Baltic States there is less housing differentiation between wealthy and poor households, with an indication of a higher level of housing conditions, which is probably also associated with population decline and rapid financialisation of the housing market [Soaita, Dewilde 2017, p. 25]. In addition, it should be noted that in countries such as Romania or Bulgaria, housing construction does not significantly contribute to the improvement of housing conditions, because newly built facilities have small area and are of low quality [Soaita, Dewilde 2017].

7.1.3. Directions of changes at the regional level

The convergence of housing markets in the international dimension is also accompanied by the process of regional market divergence. This means that along with the trend towards the harmonisation of the housing situation among national markets, regional differences are increasing. Therefore, one can speak of a kind of dualism in the development of housing markets. This dualism is also observed in the context of economic convergence. Research in this area confirms convergence among the EU countries along with divergence of regions in individual countries [Cinzia et al. 2018; Jóźwik 2014; Lucian-Liviu 2016]. The reasons for this process are seen, among others, in the need to increase the competitiveness of regions due to the free movement of capital and human resources within the European Community. Developed regions are better able to meet these challenges, as a result of which they increase the distance to less developed regions [Martin 2005; Petrakos, Artelaris 2009].

5 The slowness of this process is due to the small number of housing units built, which means that the housing stock created in the communist period still plays a dominant role in assessing the quality of the stock.

The observed and empirically confirmed economic polarisation of regions within many EU countries can explain the divergence of regional housing markets. Economically strong regions most often maintain their development potential and investment attractiveness in the long term. These determinants, in turn, have their impact on the housing situation. Therefore, regional markets which offer more favourable career prospects for residents, show greater absorption of new housing investments, and offer higher profitability of housing construction develop faster.

7.2. Housing convergence and the problem of social inequalities

7.2.1. Directions of changes in the housing situation of households in various income groups in the years 2007 and 2017

However, the obtained picture of changes taking place in the European housing markets and their impact on the housing situation of citizens is not complete. Conducted studies refer to the territorial (spatial) dimension of convergence, but they do not address the housing situation of households with regard to their economic status, place of residence (city-village), age or gender criterion. However, these issues are in the area of interest of social policy, and within it – the housing policy. The general trend of improving the housing standards in the EU countries is accompanied by complex problems of inequality in access to housing services in terms of quantity and quality.

The problem of socio-economic inequalities and their importance for development has begun to be noticed in recent years and has led to significant growth in the literature analysing this issue [Piketty, Saez 2013; Piketty 2015; Sen 2010; Atkinson 2013; Stiglitz 2006, 2012]. Attention has been also paid to the importance of real estate, both land and residential units, but within the meaning of classical economy. It is emphasised that it is necessary to study not only the impact of changes in housing prices on wealth, but also effects of changes in the housing policy in relation to real income and broadly understood wealth of the whole society [Maclennan, Miao 2017, p. 136]. This means that housing issues will return to the area of macroeconomic issues – distribution of national income, economic growth, and asset productivity, with emphasis on fixed assets.

Housing systems affect economic processes due to cultural changes and a globalising world, but also through their own specific characteristics. The increase in the number of people living in cities and the growing concentration of population in the most attractive locations cause an increase in demand for housing services,

demand that is price inelastic. The supply of capital and labour is becoming more and more elastic, but the supply of housing space is inelastic in the short term. The increase in housing demand and the slow response of the supply side cause prices to rise faster than income. However, state intervention in terms of providing housing assistance is diminishing, and local government (most often) must find solutions on its own. The situation in the local housing market may be influenced by phenomena and processes spatially located elsewhere (e.g. withdrawal of foreign capital due to the economic crisis in the investor's country). The danger of increasing the gap between owners and tenants is pointed out, as well as the quality of life of those households that are not wealthy but aspiring to be owners, as they have no choice but to buy properties located far from the centre and characterised by low quality, the effects of which can be significant for local labour markets [Maclennan, Miao 2017, p. 142]. The difference between the most dynamically developing cities and their housing markets and cities with lower potential will grow, and it seems that the local housing policy in supercities will not be able to find a solution to growing housing problems.

In order to illustrate the difference in the housing situation of households, the current housing situation in selected EU countries was compared with data from 2007. Households were divided into two groups, the first group consists of those which receive less than 60% of national median equivalised disposable income and the other group comprises households that receive more than 60% of national median equivalised disposable income. Several indicators were selected to illustrate differences in the processes occurring in both income groups. Figure 7.1 illustrates changes that occurred in relation to the group of owners.

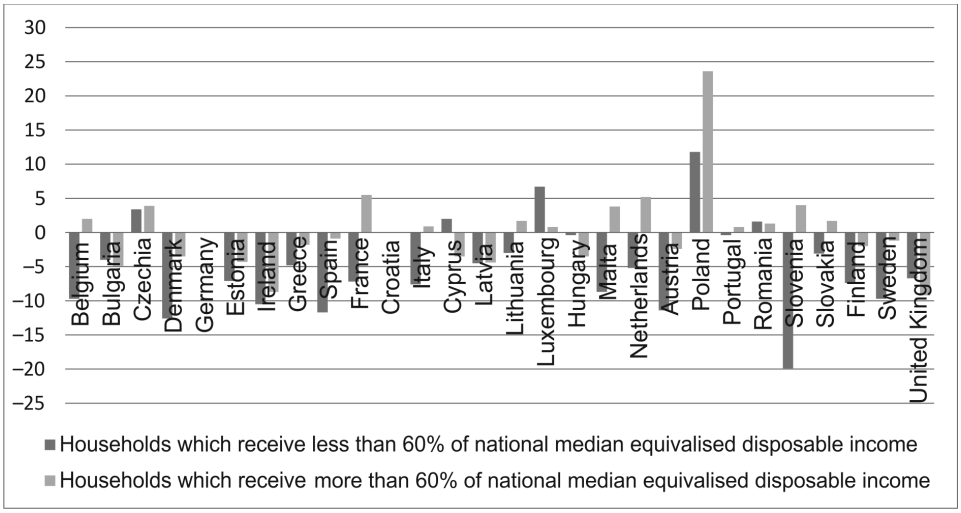


Figure 7.1. Percentage difference in the share of home owners (2007 and 2017)
Source: own elaboration based on Housing Statistics Eurostat.

The reduction in the share of home owners is clearly visible primarily in the group of households with lower incomes. Changes in Poland are an exception because the share of home owners increased significantly in both income groups. The departure from ownership on the part of lower-income households is not surprising, as ownership, in particular of technically worn housing stock, can be a very serious burden on the budget. The largest decrease of the number of home owners in this income group can be observed in Slovenia, Denmark, Spain, and Austria.

The study of the group of tenants of social housing also indicates serious differences among individual countries – see Figure 7.2.

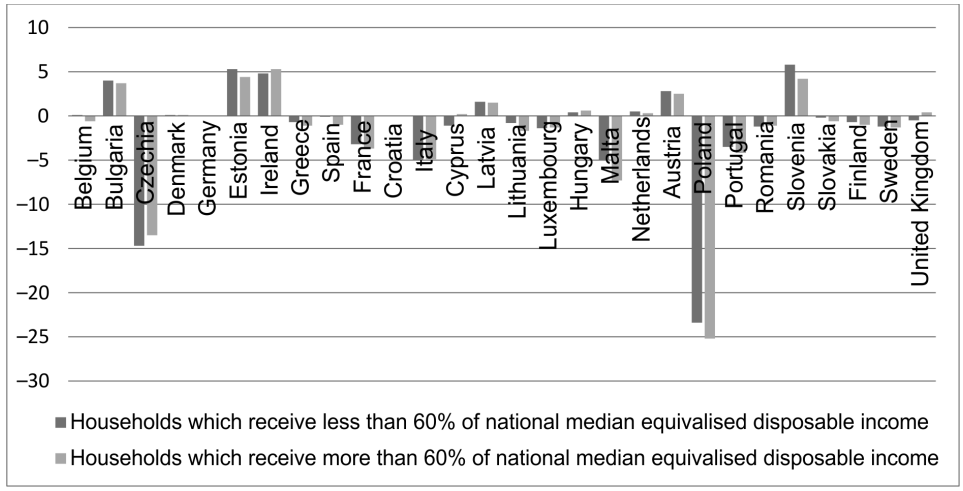


Figure 7.2. Percentage difference in the share of social housing tenants (2007 and 2017)
Source: own elaboration based on Housing Statistics Eurostat.

Also in this case, Poland clearly stands out with a very strong decline in households using the social housing stock. A significant reduction in households in both income groups occurred also in the Czech Republic. In Bulgaria, Estonia, Ireland, Latvia, Austria, and Slovenia, groups using social housing increased, interestingly in both income groups.

Overburdening with housing costs[6] is another indicator that can be used to illustrate the difference in the housing situation – see Figure 7.3.

6 Overburdening with housing costs means that housing costs exceeded 40% of the household's equivalised disposable income.

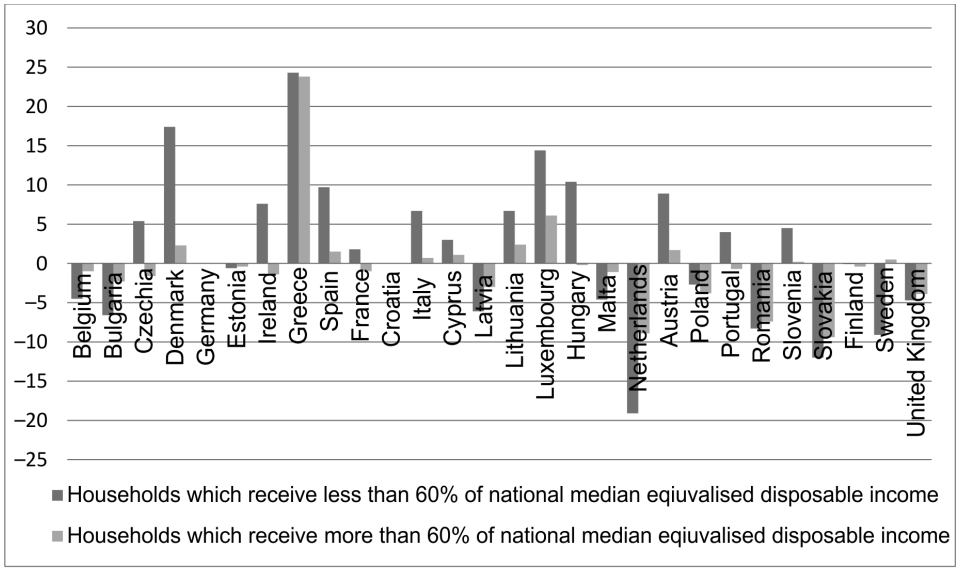


Figure 7.3. Percentage difference in the share of households overburdened with housing costs (2007 and 2017)
Source: own elaboration based on Housing Statistics Eurostat.

The problem of overburdening with housing costs increased in the group of lower-income households in 14 countries, except for Greece, and the largest increase was observed in Denmark, Luxembourg, Hungary, and Spain. Positive changes, i.e. a reduction in the number of households overburdened with housing costs, were most pronounced in the Netherlands, Slovakia, and Sweden. In the "old" EU countries, the situation is stable in the group of households with higher incomes, with the exception of primarily Greece, where the number of households overburdened with housing costs has increased significantly.

The technical condition of the housing stock can be analysed on the basis of the severe housing deprivation rate[7] – see Figure 7.4.

7 It is defined as the percentage of persons occupying dwellings considered overcrowded which additionally have no bathroom or toilet, have a leaky roof or are underexposed in terms of natural light.

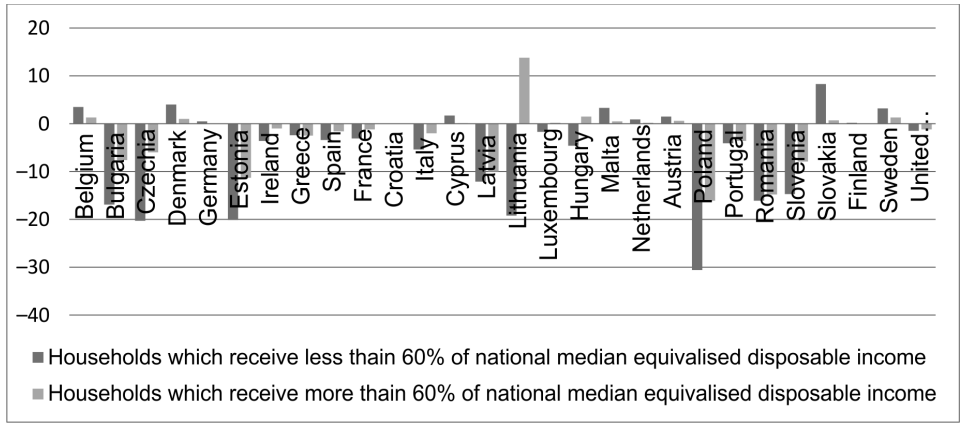


Figure 7.4. Percentage difference in the share of households living in conditions of severe housing deprivation (2007 and 2017)
Source: own elaboration based on Housing Statistics Eurostat.

The analysis of changes in the severe housing deprivation rate allows us to conclude that there is clearly visible improvement in the group of post-socialist countries, in particular in relation to housing conditions of less affluent households. Little has changed in the "old" EU countries.

The last indicator that was chosen to illustrate the difference between the year 2007 and the year 2017 is the overcrowding of dwellings – see Figure 7.5.

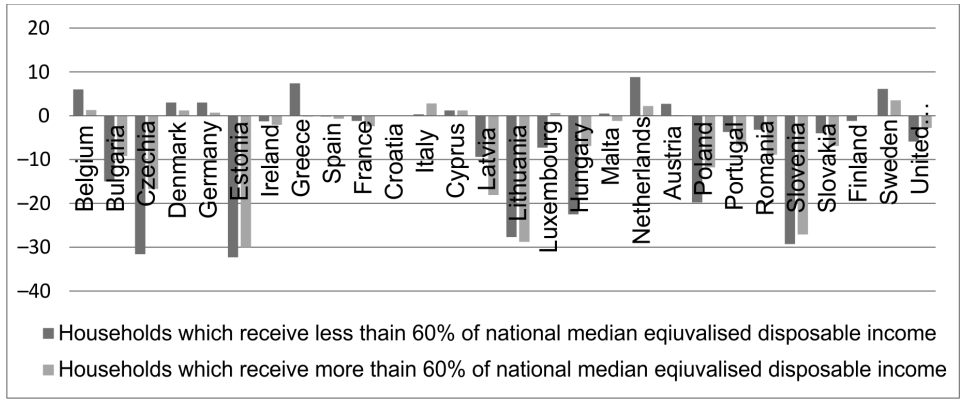


Figure 7.5. Percentage difference in the share of households living in overcrowded conditions (2007 and 2017)
Source: own elaboration based on Housing Statistics Eurostat.

As in the case of the previous indicator, the process of "catching up" by post-socialist states is clearly visible. The improvement was most significant in Estonia, the Czech Republic, Slovenia, and Lithuania in relation to less affluent households, the group of leaders among wealthier households looked similar, only the Czech Republic was absent from the ranking.

Based on these examples, it can be said that certain processes occur clearly in post-socialist countries, as they are striving to match the standards of "old" EU countries. However, the problem of overburdening with housing costs is not so simple to interpret.

7.2.2. Trends in housing costs in various income groups

A study of housing affordability in selected EU countries based on data from 1995 and 2012 leads to the conclusion that in most of the countries analysed the situation of low-income owners and tenants in privately rented dwellings deteriorated over time compared to the middle-income group, and this is not the result of the impact of the global economic crisis [Dewilde, De Decker 2015]. The authors of the study indicate that this process results from the growing financialisation of residential units and a reduction in the supply of dwellings for rent. Unfortunately, the decrease in the affordability of dwellings was not offset by an increase in the quality of the housing stock.

In order to attempt to predict the changes that will occur, it was decided to examine trends existing in the EU Member States, including post-socialist ones, in the year 2007 and the year 2017 in terms of overburdening with housing costs (the share of housing expenditure 40% and above in the household budget). The study group was divided into two categories – households that receive above and below 60% of national median equivalised disposable income. The analysis makes it possible to determine the trends observed in the examined years – see Table 7.3, Figure 7.6.

Table 7.3. The housing cost overburden rate taking into account the financial situation of households

Country		2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	trend	trend in the difference for the income groups
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
EU – 27 countries	Above 60% of median equivalised income	5.9	5.7	5	5.5	6	5.5	5.8	5.7	5.6	5.3	4.8	downturn	upward
	Below 60% of median equivalised income	34.4	34.2	34.5	37.1	38	38.2	37.8	40.2	39.3	39.2	38	upward	
Belgium	Above 60% of median equivalised income	5	7.1	3.9	4	4.8	5.1	4.4	4.5	4.5	4.3	4.3	downturn	downturn
	Below 60% of median equivalised income	38.9	44	37.1	37.9	42.7	44	39	42.6	37.6	37.6	34.4	downturn	
Bulgaria	Above 60% of median equivalised income	11.3	8	2.3	2.2	3.9	6	7.9	5.2	6.4	10.4	9.4	upward	upward
	Below 60% of median equivalised income	56.7	32.9	23.8	20.2	25.8	46	38.5	40.4	44.6	55.3	50.1	upward	
Czechia	Above 60% of median equivalised income	7.3	9.3	5.8	5.7	5.9	6.2	7.9	6.9	6.3	5.7	5.1	downturn	upward
	Below 60% of median equivalised income	38.8	47.5	43	49.4	42.3	46.3	51.6	44.1	48	45.4	44.2	upward	

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Denmark	Above 60% of median equivalised income	7.5	11.2	17.2	14.4	11.3	9.5	10.2	8.5	7.9	7.1	7.4	downturn	upward
	Below 60% of median equivalised income	58	60.7	70.5	71.1	71	69.4	75.2	68.1	66.8	74.2	75.4	upward	
Germany	Above 60% of median equivalised income	:	:	:	9.4	10.5	9.9	10.1	8.3	8.4	9.1	7.9	downturn	upward
	Below 60% of median equivalised income	:	:	:	42.2	46.3	51.7	49.2	54.4	51.9	50.3	48.5	upward	
Estonia	Above 60% of median equivalised income	1.9	1.3	1.8	2.2	2.8	2.6	2.2	2	1.6	0.9	1.1	downturn	upward
	Below 60% of median equivalised income	19	13.1	14.7	26.2	29.5	32.4	29.3	30.8	25.8	19.3	18.4	upward	
Ireland	Above 60% of median equivalised income	1.2	1.7	1.6	1.7	2.3	2.2	1.6	2.2	2	1.7	1.7	upward	upward
	Below 60% of median equivalised income	12.3	12.2	17.3	23.1	27.3	28.3	21	27.1	18.2	18.6	19.9	upward	
Greece	Above 60% of median equivalised income	3.2	11.3	10.6	5.5	9.4	15.8	19.9	31.2	32.3	26.7	26.8	upward	upward
	Below 60% of median equivalised income	65.4	65.6	67.1	67.7	78.8	90.5	93.1	93.3	94	91.9	89.7	upward	

Table 7.3 (cont.)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Spain	Above 60% of median equivalised income	3.8	3.8	4	3	3.3	3	3.2	2.7	2.5	2.6	2.5	downturn	upward
	Below 60% of median equivalised income	26.8	32.1	35.2	35.2	35.8	40	38.3	39.6	38.1	36.4	36.5	upward	
France	Above 60% of median equivalised income	3.8	2.6	2.4	2.5	2.5	2.4	2.4	2.7	3.2	2.5	2.4	downturn	upward
	Below 60% of median equivalised income	18.3	15.6	14.9	22.1	22.2	22.2	23.1	20.9	21.5	22.3	20.1	upward	
Croatia	Above 60% of median equivalised income	–	–	–	5.2	1.8	1.3	2.1	2.2	1.3	1	0.7	downturn	downturn
	Below 60% of median equivalised income	–	–	–	48.4	31.2	28.5	34.8	30	31.1	29.4	26.2	downturn	
Italy	Above 60% of median equivalised income	3	3.8	3.3	2.6	2.9	2.8	3.3	2.9	2.5	2.7	1.9	downturn	upward
	Below 60% of median equivalised income	26.2	27.4	27.6	29.7	31.9	30.1	32.2	31.9	32.9	35.8	32.9	upward	
Cyprus	Above 60% of median equivalised income	0.7	1	1.1	1.6	1.8	1.6	1.8	2.2	2.1	1.3	1.4	upward	upward
	Below 60% of median equivalised income	7.3	6	9.7	10.9	10.5	12.9	11.5	14.4	13.1	12.6	10.3	upward	

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Latvia	Above 60% of median equivalised income	4.1	2.3	2.5	4	6.6	5.5	5	3.5	3	1.9	1.6	downturn	downturn
	Below 60% of median equivalised income	31.7	27.1	28.5	31.9	37.9	35.9	38.2	32.5	25.9	25.2	25.6	downturn	
Lithuania	Above 60% of median equivalised income	1.2	1	1.8	3.4	4.8	3.3	2.9	2.2	2.5	1.7	1.3	upward	upward
	Below 60% of median equivalised income	20.1	20.1	20.3	38.5	38	33.1	28.8	27.4	32.2	29.6	26.8	upward	
Luxem-bourg	Above 60% of median equivalised income	1	1.1	1	1.4	1.1	1.5	1.8	2.1	2.1	4	3.6	upward	upward
	Below 60% of median equivalised income	23	20.7	19.2	24.4	23.6	23.9	25.9	30.9	27.9	37.2	37.4	upward	
Hungary	Above 60% of median equivalised income	7	7.3	5	7.7	8.5	10.6	9.7	8.3	4.5	4.7	4.7	downturn	upward
	Below 60% of median equivalised income	39	42.5	36	36.7	40.6	38.8	40.7	38.4	31.5	32.9	49.4	upward	
Malta	Above 60% of median equivalised income	1.1	1.6	1.5	1.9	1.4	1	0.8	0.8	0.4	0.6	0.6	downturn	downturn
	Below 60% of median equivalised income	10.2	12.4	10.6	13.3	11.6	11.9	11.2	5.8	4.8	5.7	5.6	downturn	

Table 7.3 (cont.)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
the Netherlands	Above 60% of median equivalised income	13.6	9.9	9.3	10.6	11.1	10.8	11.9	10.7	10.2	6	4.6	downturn	downturn
	Below 60% of median equivalised income	60	46.2	43.3	43.4	42.8	46.6	48.3	51.1	51.4	42.9	40.9	downturn	
Austria	Above 60% of median equivalised income	1.9	3.1	2.6	2.8	3.1	1.9	1.8	1.6	1.8	2	1.5	downturn	upward
	Below 60% of median equivalised income	31.4	38.1	41.3	36.6	36.9	37	39.1	36.7	34.8	38.8	40.3	upward	
Poland	Above 60% of median equivalised income	5.8	5.1	4.1	4.6	4.7	5.2	5.5	4.8	3.7	2.9	2.3	downturn	upward
	Below 60% of median equivalised income	33.1	32.1	28.3	30.5	35.7	36.1	33.5	32	30.7	29.6	30.4	downturn	
Portugal	Above 60% of median equivalised income	4.2	4.5	2.7	1.6	3	3.8	3	3.2	3.2	2.5	2.4	downturn	upward
	Below 60% of median equivalised income	22	21.4	21.5	15.9	26.4	28.8	30.9	33.7	33.5	29.1	26	upward	
Romania	Above 60% of median equivalised income	11.6	12	9.1	9.1	6.9	10.5	9.5	8.1	6.9	6.1	4.9	downturn	upward
	Below 60% of median equivalised income	44.6	42	37.3	40	23.2	45	41.5	40.1	42.6	38.8	36.3	downturn	

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Slovenia	Above 60% of median equivalised income	2.8	2.1	1.6	2	1.9	2	2.6	2.6	2.6	2	1.9	downturn	upward
	Below 60% of median equivalised income	22.2	21.1	21.7	20.6	22.5	26	26.3	29.4	27.7	28.3	26.7	upward	
Slovakia	Above 60% of median equivalised income	13.9	3.1	5.5	3.8	3.9	4.1	4.2	5.1	5.5	3.7	4.1	downturn	upward
	Below 60% of median equivalised income	50.9	26.3	40.5	35.2	38.4	36.3	36.2	36.4	34.5	35.6	38.9	downturn	
Finland	Above 60% of median equivalised income	2.7	2.5	2.4	2.4	2.7	2.6	2.8	2.8	2.7	2.4	2.5	upward	upward
	Below 60% of median equivalised income	18.3	18.8	17.1	16.4	15.3	17.2	20.4	21.2	20.4	19.5	18.2	upward	
Sweden	Above 60% of median equivalised income	3.3	3.6	3.9	1.9	2.8	2.7	3	2.5	2.6	2.6	2.7	downturn	downturn
	Below 60% of median equivalised income	47.9	51.5	50.7	41.9	45.8	42.1	41	42.3	39.9	38.7	38.8	downturn	
United Kingdom	Above 60% of median equivalised income	9.7	9.3	8.5	8.8	9.5	3.7	4.3	6.7	6.9	6.6	6.9	downturn	downturn
	Below 60% of median equivalised income	45.5	46.7	53.5	54.9	52.8	26	27	41.7	40	42.4	40.8	downturn	

Source: own elaboration based on Eurostat data.

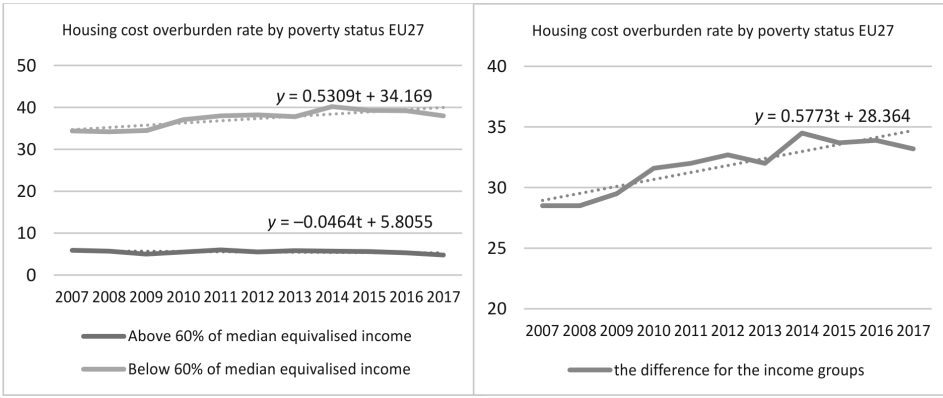


Figure 7.6. The housing cost overburden rate taking into account the financial situation of households in the EU-27
Source: own elaboration.

Increased overburdening with housing costs in both income groups occurred in Bulgaria, Cyprus, Finland, Greece, Ireland, Lithuania, and Luxembourg. In some EU countries, different trends were observed in the income groups analysed – the situation of households receiving more than 60% of national median equivalised disposable income was illustrated by a downward trend, i.e. they were less overburdened with housing costs, but in the less affluent group the overburdening trend was increasing: Austria, Czech Republic, Denmark, Estonia, France, Germany, Hungary, Italy, Portugal, Slovenia and Spain,

7.2.3. Trends in housing overcrowding rate in various income groups

The picture of the trend related to overcrowding of dwellings (2005–2017) is shown in Table 7.4. Among the countries studied, the deterioration of housing conditions through the increase in overcrowding in both income groups occurred in Denmark, Finland, Italy, the Netherlands, and Sweden.

Table 7.4. The overcrowding rate taking into account the financial situation of households

Country		2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	trend	trend in the difference for the income groups
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
EU – 27 countries	Above 60% of median equivalised income	17.1	16.8	16.4	16.1	15.3	15.1	14.3	14.2	14.2	13.7	13.8	13.7	13.3	downturn	upward
	Below 60% of median equivalised income	31.7	30.7	30.3	29.5	30.1	29.8	29	29.2	29.8	29.8	29.4	29.4	26.3	downturn	
Belgium	Above 60% of median equivalised income	2.2	2.2	2.6	2.8	2.4	2.6	1.1	0.7	0.8	0.8	0.7	2.0	2.9	downturn	downturn
	Below 60% of median equivalised income	14.4	11.8	10.5	11.6	12.6	13.7	8.4	6.2	8.4	8.9	6.5	13	16.5	downturn	

Table 7.4 (cont.)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Bulgaria	Above 60% of median equivalised income	–	45.9	47.5	46.8	46.1	45.8	45.4	42.5	41.9	40.1	39.4	39.9	39.8	downturn	downturn
	Below 60% of median equivalised income	–	58.5	63.6	52.8	50.2	53.4	54.7	51.9	53	54.7	48.5	51.1	48.6	downturn	
Czechia	Above 60% of median equivalised income	30.6	30.9	29.4	27.8	24.4	20.3	18.9	18.7	19	17.3	16.3	15.5	14.1	downturn	downturn
	Below 60% of median equivalised income	58.8	60.1	63.2	50.4	50.8	44.1	41	43.5	42.7	44.7	40.4	39.5	34.8	downturn	
Denmark	Above 60% of median equivalised income	5.5	5.4	5.4	5.2	5.6	5.3	5.5	5	5.4	5.9	5.4	6.1	6.2	upward	upward
	Below 60% of median equivalised income	21.2	20	22.6	22.5	22.4	20	21.2	23.8	26.9	24.8	27.2	23.5	25.6	upward	

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Germany	Above 60% of median equivalised income	5.1	6.3	4.9	4.9	4.3	4.8	4.2	4.5	4.8	4.6	4.9	4.9	5.1	downturn	upward
	Below 60% of median equivalised income	15.4	16.6	15.6	18.8	21.8	19.3	19.9	17.6	16.8	16.3	17.3	18.9	18.6	upward	
Estonia	Above 60% of median equivalised income	43.9	44.4	42.4	41	39.1	37.1	11.7	12.2	20.2	13.3	12.9	12.5	12.9	downturn	downturn
	Below 60% of median equivalised income	56.2	52.6	47.9	44.8	49.9	53.8	27.1	22.5	24.9	17.7	15	16.7	15.6	downturn	
Ireland	Above 60% of median equivalised income	4.3	5.3	4.2	4.3	2.8	2.6	1.8	2.6	2.5	2.8	2.9	2.8	1.9	downturn	downturn
	Below 60% of median equivalised income	9.9	10.1	8.8	6.8	8.4	7.7	6.7	6.2	4.4	7.6	6.0	6.3	7.5	downturn	

Table 7.4 (cont.)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Greece	Above 60% of median equivalised income	28	27.3	27.3	24.6	23.2	23.2	23.2	22.7	22.9	22.9	24.3	25	25.3	downturn	upward
	Below 60% of median equivalised income	34.1	37.3	36.3	35.2	32.3	34.7	35.8	39.4	42	43.1	42	42.2	43.7	upward	
Spain	Above 60% of median equivalised income	7.2	5.2	4.3	4.2	4.0	3.9	5.3	4.0	3.7	3.7	3.8	3.3	3.4	downturn	upward
	Below 60% of median equivalised income	13.2	11.7	11.5	11.2	10.0	9.2	11.3	11.6	11	10.8	11.4	12.7	11.3	downturn	
France	Above 60% of median equivalised income	7.6	6.5	7.8	7.3	7.0	6.7	5.4	5.6	5.2	4.9	5.3	5.3	5.1	downturn	upward
	Below 60% of median equivalised income	21.4	18.5	25.7	26.4	27.2	25.6	23.5	23.3	20.9	21.1	20.9	23.1	24.5	downturn	

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Croatia	Above 60% of median equivalised income	–	–	–	–	–	43	43.9	43.3	41.8	40.9	40.9	39.9	38.8	downturn	upward
	Below 60% of median equivalised income	–	–	–	–	–	46.4	47.3	48.6	46.8	47.1	45	45.9	44.4	downturn	
Italy	Above 60% of median equivalised income	21.2	21.7	21.3	21.8	20.6	21.1	21.2	22.8	23.6	23.4	23.9	24.8	24.6	upward	upward
	Below 60% of median equivalised income	36.5	36.7	36.6	35	35.2	38.1	38.1	39.8	41.7	43	43.8	39.2	36.9	upward	
Cyprus	Above 60% of median equivalised income	1.5	1.3	1.1	2.3	2.1	2.7	2	2	1.9	1.8	1	1.7	2.3	upward	downturn
	Below 60% of median equivalised income	6	5	4.8	8.5	5.2	7.5	7.8	7.5	4.9	4.6	3.5	5.7	6	downturn	

Table 7.4 (cont.)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Latvia	Above 60% of median equivalised income	59.5	59.2	60.9	58.6	55.7	52.8	40.4	33.7	35.3	37.5	39.1	42.4	40.5	downturn	upward
	Below 60% of median equivalised income	63.2	61.9	56.6	53.7	57.8	66.4	57.4	48.7	47.9	48.2	49.4	45.9	47	downturn	
Lithuania	Above 60% of median equivalised income	50.4	51.7	51.4	47.5	46.4	43.9	17.3	17.8	26	26.5	24	21.6	21.9	downturn	upward
	Below 60% of median equivalised income	62.3	60.7	57.3	52	54.7	51.8	28.7	24.7	35.4	35.9	34.5	31	29.6	downturn	
Luxembo-urg	Above 60% of median equivalised income	5.5	4.5	4.7	4.3	3.6	4.9	4.1	4.4	3.4	3.8	4.4	4.6	5.7	downturn	downturn
	Below 60% of median equivalised income	34.9	27	27	32.1	22.8	24.9	23.8	21.4	20.6	21.6	19.8	26	19.7	downturn	

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Hungary	Above 60% of median equivalised income	47.5	47.5	45	45.8	43.7	44	41.6	41.4	40	38.1	37.5	38	40.2	downturn	downturn
	Below 60% of median equivalised income	65.8	70.7	65.1	65.7	68.8	69.7	68.9	68.3	66.8	63.8	62	54.7	42.6	downturn	
Malta	Above 60% of median equivalised income	3.6	3.5	4	3.8	3.6	3.6	3.5	3.5	4.1	3.2	3	2.2	2.5	downturn	upward
	Below 60% of median equivalised income	4.7	3.4	5.4	4.2	5.1	6.6	9.2	6.6	6.7	8.3	7.7	7.1	5.9	upward	
Nether-lands	Above 60% of median equivalised income	1.6	1.5	1.5	1.2	1.3	1.7	1.3	1.8	1.3	1.9	2	2.5	2.5	upward	upward
	Below 60% of median equivalised income	3.9	4.5	5.8	6.3	5.5	4.5	4.7	9.2	13.8	15.9	13.2	14.6	14.6	upward	

Table 7.4 (cont.)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Austria	Above 60% of median equivalised income	12.7	13.1	12.7	11.4	10.5	8.9	9.7	10.5	11.9	12.1	11.9	11.5	11.5	downturn	upward
	Below 60% of median equivalised income	30.8	32.7	33.3	33.6	30.1	29.8	27.2	34.3	31.3	34.2	34.1	37.5	36	upward	
Poland	Above 60% of median equivalised income	50.3	50.1	48.6	47.5	45.9	43.7	43.9	43.3	41.2	40.4	39.9	36.8	38.8	downturn	downturn
	Below 60% of median equivalised income	69.1	71.1	69.6	67.2	64.9	65.6	62.5	60.8	61.9	62.4	59.7	59.2	49.8	downturn	
Portugal	Above 60% of median equivalised income	14.6	14.3	14.9	13.6	12.1	12.9	8.9	8.5	9.5	7.7	7.7	8	7.4	downturn	upward
	Below 60% of median equivalised income	24.7	22.2	21.4	25.1	23.4	22.3	20.6	17.2	19.7	21.1	21	19.9	17.7	downturn	

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Romania	Above 60% of median equivalised income	–	–	54.1	52.7	51	49.2	48.1	48.1	46.5	44.4	45.6	44.3	43.5	downturn	upward
	Below 60% of median equivalised income	–	–	61.5	61.7	62	61.9	62.6	63.6	64.4	64.5	61.7	60.6	58.3	downturn	
Slovenia	Above 60% of median equivalised income	40.7	39.4	38.7	38.4	37.2	33.3	15.6	15	14	13.1	12.1	11.3	11.8	downturn	upward
	Below 60% of median equivalised income	50.7	47.1	48.9	47.2	44.4	46.3	26.4	27.1	25.2	24.9	23.1	20.4	19.6	downturn	
Slovakia	Above 60% of median equivalised income	44.6	44.1	41.4	41.3	37.5	37.6	37.1	36.2	37.4	35.7	35	35.6	33.7	downturn	upward
	Below 60% of median equivalised income	59.9	60.4	59.6	55.5	58.3	58.4	55.5	52.4	55.7	58.2	57.6	54.2	55.6	downturn	

Table 7.4 (cont.)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Finland	Above 60% of median equivalised income	5.3	4.5	4.2	4.0	4.1	4.3	4.7	3.8	4.8	5	4.7	4.8	4.6	upward	upward
	Below 60% of median equivalised income	19.7	18.2	19	16.8	16.9	17.5	17.7	20.6	22.8	20.8	21	20.5	17.8	upward	
Sweden	Above 60% of median equivalised income	8.6	7.7	7.5	7.9	9.5	9.5	10.3	8.9	8.2	7.5	8.9	9.3	9.1	upward	upward
	Below 60% of median equivalised income	30.9	32.2	31	31.3	27.2	34.2	31.1	35.6	38.7	42.1	40	41.3	37.1	upward	
United Kingdom	Above 60% of median equivalised income	4.2	4.9	4.8	5.3	5.5	6.0	6.3	5.7	6.7	5.9	6.0	6.8	2.8	upward	downturn
	Below 60% of median equivalised income	12.4	12.5	12.3	11.5	15.7	14	11	13.7	14.9	14	14	14.4	6.4	downturn	

Source: own elaboration based on Eurostat data.

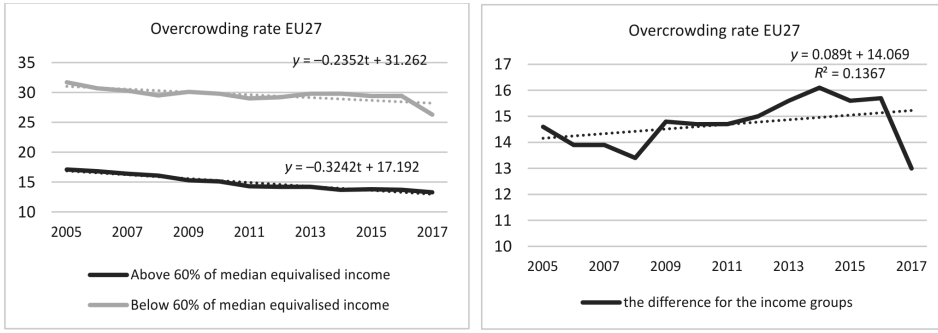


Figure 7.7. The overcrowding rate taking into account the financial situation of households
Source: own elaboration.

The upward trend in the percentage of households living in overcrowded conditions in groups with less than 60% of national median equivalised disposable income was evident in Austria, Greece, and Germany. It is astonishing that in Cyprus and the United Kingdom the upward overcrowding trend was observed in the wealthier group. In most EU countries (19 cases) but also on the scale of the entire European community, in the adopted analysis horizon, differences in the housing overcrowding rate in the studied income groups of households increased (Fig. 7.7).

7.3. Conclusions

Despite the universal nature of housing needs, the scope of their satisfaction is not identical in individual markets. For decades, European housing systems have shown significant differences in both the level of development and the conceptual approach to housing. In this respect, we are dealing with a full spectrum of solutions, from systems based essentially on market solutions to systems emphasising the caring role of the state and the need for public interventionism in the housing sphere. Differences in developmental trajectories of housing markets identified in the literature are a consequence of historical processes, established cultural patterns and, as should be borne in mind, also geopolitical divisions of post-war Europe.

Housing markets, however, are subject to constant changes whose direction today is primarily due to the socio-economic integration of European economies. This is confirmed by the results of carried out research in the light of which there is a trend towards a reduction in differences in terms of access to and quality of housing services in European markets. The historical division into the underdeveloped housing markets of Central and Eastern Europe and the Western European

markets offering a much higher standard of housing is gradually disappearing. However, these processes are long-term ones, and they do not guarantee full unification of housing markets. Parallel to the convergence of domestic housing markets, there exists a phenomenon of regional divergence, which is an expression of the natural process of faster development of regions with high economic potential relative to the lower dynamics of change in economically weaker regions.

Changes are also noticeable on the side of the institutional environment of housing markets, with particular emphasis on housing policy models implemented in individual countries. Club convergence is observed in this respect. Countries with similar structural features and historical experiences also show greater similarity in terms of institutional organisation of their housing markets.

However, the European markets face new challenges stemming from economic, social, and cultural changes, and in the long run also ecological ones. Already, their housing systems have to face the problem of an aging population, growing social inequalities, increased internal migration, and a wave of immigration from outside the EU, as well as the urgent need to reduce the negative impact of housing construction and the use of housing stock on the environment.

In this context, it is also worth mentioning the popularisation of the concept of the sharing economy in the housing sphere, which fundamentally changes the perception of residential real estate. A dwelling ceases to be understood as a durable consumer good, and is seen more often as a housing service. The effect of these changes is the phenomenon of co-living, resignation from ownership in favour of flexible forms of satisfying housing needs, but also the concentration of housing stock in the hands of large investors, the intensification of tourism in cities, crowding out existing city centre residents by short-term tenants, or an increase in rental prices. The presented trends will definitely have an impact on the future shape of the housing markets in Europe.

Summary

This publication presents considerations concerning convergence processes of housing markets. The special character of the housing market as well as its multifaceted impact on the lives of individuals and the functioning of the entire economy provide an important premise to undertake research on the direction and nature of changes occurring in the housing sphere, both internationally and regionally. This publication is part of research on the housing sector carried out in many countries. However, it presents not only the most frequently conducted studies on price convergence but is also characterised by a broader perspective, taking into account real and institutional convergence of housing markets. An attempt has been also made to indicate the reasons for this phenomenon and its effects.

The spatial scope of research was limited to EU countries, including changes related to the enlargement of EU borders to include less developed countries compared to the members of the old Union. The specificity of the research required taking into account a long period of analysis: studies on changes in real estate markets dated back to the 1950s, while studies on the course of convergence processes covered the period 2000–2017.

The issues covered by the publication include four mutually complementary threads. It contains a **theoretical layer** which presents the social and economic dimension of the housing market, the evolution of housing models in European economies, as well as the essence of convergence theory, which is part of development economics.[1] The theoretical layer required supplementing by a **methodological layer**, containing proposals of methods for testing the convergence phenomenon. The publication also contains a **calculation layer –** an extremely labour-intensive and difficult layer at the implementation stage. This layer presents diagnostic features, shows the scale of nominal and real convergence in housing markets in European countries, along with the dynamics of convergence processes, as well as the alignment of housing market convergence with economic convergence. An **analytical layer**, closely related to the calculation layer, is an attempt to identify the causes and effects of convergence processes in housing markets.

1 Development economics became a separate discipline in the 1950s, gaining in importance in the 1990s.

Based on the research, several conclusions can be drawn:

1. The trend towards reducing inequalities in the level of economic development of EU Member States as well as the trend towards decreasing the diversity of European housing markets have been empirically confirmed. Thus, the hypothesis (H1) that housing markets in European countries are subject to convergence processes has been confirmed.
2. Housing markets have been subject to price and non-price convergence. In the international dimension, two clubs in which average real estate prices showed a statistically significant decrease in diversity over the research horizon (2000–2017) have been identified by the conducted price analysis. The first club comprises the following housing markets: Belgium, Finland, France, the Netherlands, Ireland, Germany, Poland, Slovakia, Great Britain and Italy (10 markets). The other club includes the markets of Bulgaria, Greece, Portugal and Spain (4 markets).

Also in the regional dimension, groups of housing markets where price differentiation showed a downward trend were distinguished in individual countries. The number of identified price convergence clubs ranged from 1 to 4 clubs. In selected economies, there were also cases of regional markets, which, according to the adopted methodology, were not classified into any of the groups experiencing price convergence. Those were mostly markets with a clearly different long-term path of price changes compared to other regions. The conclusions of the price convergence analysis confirm the hypothesis (H3) indicating that housing convergence processes are spatially diverse and assume the character of club convergence.

The following six indicators were the basis for inferring non-price convergence on an international scale: the housing deprivation rate, purchasing power of households in the housing market, housing ownership rate, public expenditure on housing, the scale of mortgage lending, and the number of dwellings per 1000 inhabitants. The conducted research has confirmed the occurrence of beta- and sigma-convergence for five of the six adopted indicators (with the exception of public expenditure on housing). Dynamic convergence processes occurred primarily in the area of household mortgage debt, housing ownership rate and housing deprivation rate. Importantly, the convergence of housing markets changed over time. Stronger tendencies to harmonise housing markets occurred in the upward phase of the business cycle (2000–2007), while much weaker tendencies were observed in the years following the global economic crisis (2008–2017). For most variables, gamma-convergence was not diagnosed.

The regional analysis taking into account two basic diagnostic variables (the number of dwellings per 1000 inhabitants and the purchasing power of households in the housing market) has outlined a different picture of changes occurring in the housing markets. In terms of the housing stock, regional markets showed beta- and sigma-divergence. However, the ambiguous direction of changes was obtained for the index indicating purchasing power of households. In most regional

markets, beta- and sigma-convergence did not occur, or it was statistically insignificant. Gamma-convergence was also not observed.

3. Research has confirmed that convergence processes are determined by internal and external factors, indicating the validity of hypothesis (H2). Internal determinants include: factors connected above all with the historical determinants of functioning of housing markets, housing policy priorities, as well as economic potential and investment attractiveness of a given region or country. External determinants encompass socio-economic processes on an international scale. They stem from the progressive integration of European economies and the accompanying free movement of capital, migration of human resources, as well as unification of cultural patterns and lifestyle (the process of californisation of needs).

The strong role of internal factors is confirmed by the varied rate of change in the old EU Member States and newly accepted countries. The old EU countries with a higher level of GDP per capita show a lower rate of change in the housing markets. The more favourable housing situation in more developed countries implies greater inertia of these markets.

The reasons for the occurrence of the studied phenomena go far beyond the real estate market, encompassing adopted housing policy concepts, factors determining investment attractiveness of a given region or country, and socio-economic processes on an international scale, including the desire to unify cultural patterns and lifestyles. This indicates the growing role of non-price factors: institutional factors (including strategies to support ownership) as well as behavioural factors which manifest in driving household behaviour. For new members, housing conditions in the countries of the old EU have become a reference point, contributing to the creation of new housing standards and leading to the convergence of needs. The improving economic situation in the newly admitted EU countries began to create the conditions for transforming emerging needs into effective demand.

4. Due to the adoption of different solutions in the area of housing policy in the examined countries, differences in the development of mortgage markets, and different levels of society's wealth, the convergence process does not guarantee full unification of markets. We can only talk about the similarity and synchronisation of the direction of their development. This confirms the hypothesis (H4) that the long-term consequence of convergence is not the unification of housing systems but the reduction of differences in the level of development of markets (their harmonisation). It is worth noting that this conclusion remains in line with the essence of the term 'convergence'. This term has a dynamic dimension and indicates an ongoing process. According to the definition of this category, it means "the alignment of things initially different", which indicates continuing processes, and does not determine complete unification.

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Appendix

Data sources used in the analysis of convergence of European housing markets

Variable	Housing markets included in analysis	Period	Source
1	2	3	4
Convergence of national housing markets			
Average prices of residential properties per sq.m. (in EURO)	14 markets: Belgium, Bulgaria, Finland, France, Germany, Greece, Italy, the Netherlands, Ireland, Poland, Portugal, Slovakia, Spain, the UK	2000–2017	Databases of national statistical offices, central and commercial banks, Ministry for Housing, Construction and Spatial Planning
Average monthly disposable income per capita (in EURO)	14 markets: Belgium, Bulgaria, Finland, France, Germany, Greece, Italy, the Netherlands, Ireland, Poland, Portugal, Slovakia, Spain, the UK	2000–2017	Eurostat

Appen. (cont.)

1	2	3	4
Home ownership rate (%)	27 markets: Austria, Belgium, Bulgaria, Cyprus, Czechia, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, the UK	2000–2017	Eurostat and Housing Statistics in the European Union 2010 Report
Severe housing deprivation rate (%)	27 markets: Austria, Belgium, Bulgaria, Cyprus, Czechia, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, the UK	2003–2017	Eurostat
Dwellings per 1000 inhabitants	22 markets: Austria, Belgium, Bulgaria, Czechia, Denmark, Finland, France, Germany, Greece, Hungary, Italy, Ireland, Lithuania, the Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, the UK	2000–2017	Hypostat 2011 and Hypostat 2018 Reports

1	2	3	4
Public expenditure on housing per 1000 inhabitants (in EURO)	26 markets: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czechia, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Lithuania, Luxembourg, Malta, the Netherlands, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, the UK	2000–2017	Eurostat
Household mortgage debt to GDP (%)	27 markets: Austria, Belgium, Bulgaria, Cyprus, Czechia, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy Lithuania, Luxembourg, Latvia, Malta, Poland, the Netherlands, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, the UK	2000–2017	Hypostat 2011 and Hypostat 2018 Reports
Convergence of regional housing markets			
Average prices of residential properties per sq.m. (in national currency)	6 markets: Bulgaria the Netherlands Poland Slovakia Spain the UK	 2003–2017 2001–2017 2000–2017 2000–2017 2000–2017 2000–2017	 National Statistical Office Ministry of Development National Statistical Office National Statistical Office Central Bank National Statistical Office
Average monthly disposable income per capita (in national currency)	6 markets: Bulgaria the Netherlands Poland Slovakia Spain the UK	 2003–2017 2001–2017 2000–2017 2000–2017 2000–2017 2000–2017	 National Statistical Office

Appen. (cont.)

1	2	3	4
Dwellings per 1000 inhabitants	6 markets:		
	Bulgaria	2003–2017	National Statistical Office
	the Netherlands	2001–2017	Ministry of Development
	Poland	2000–2017	National Statistical Office
	Slovakia	2000–2017	National Statistical Office
	Spain	2001–2017	National Statistical Office
	the UK	2000–2017	National Statistical Office

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